THE MARINE REVIEW

VOL. XXXIII. CLEVELAND, FEBRUARY 22, 1906. No. 8.

Shipping on the Great Lakes.*

BY W. I. BABCOCK.

MR. W. I. BABCOCK.

Any description of the vessels in use on the great lakes of North America should properly be prefaced by some description of the lakes themselves and the business which is carried on over them as to which little seems to be known in other sections of this country, for the design of the vessels with which we are principally occupied today has of necessity been primarily and fundamentally affected by those conditions and has been continually modified to suit the changes that have taken place and are still taking place in them.

Some one has said that the successful engineer was the man who could do for ninety-nine cents something that it would cost anyone else a dollar to do. There is much truth in both the matter and the manner of the statement. A saving of one cent in the dollar, one per cent, in the cost of doing the world's work would amount to untold millions and engineers the world over, now here, now there, first in one particular department of a business then in another, are applying their knowledge and skill to the saving of that cent or even of the smallest part of it, so that in the aggregate the cost of carrying on that business is continually decreasing. The very first requisite is a thorough knowledge and understanding of the work to be performed, and of the conditions under which the work is to be done.

The great lakes of America comprise five principal bodies of water, of which only one, Michigan, is entirely within the limits of the United States, the other four lying along its northern edge and forming part of the division between it and Canada. Of these lakes, Ontario, the smallest, is roughly 190 miles long and 54 miles wide at its widest part, and Superior, the largest, is 412 miles long and 167 miles wide. They cover together an area of over 95,000 square miles and comprise more than one-half of all the fresh water in the globe. The heights above tide water of their surfaces vary from the 247 ft. of Ontario to the 602 ft. of Superior, and the depths from 60 ft. on Erie to 1,008 ft. on Superior, the bottoms of all except Erie being below the surface of the ocean.

The difference of level between Erie and Ontario is 326 ft., and the connecting river, Niagara, is, of course, not navigable. The size of vessels passing from one lake to another is limited by the locks of the Welland canal in Canada connecting them, to about 260 ft. x 44 ft. x 14 ft. draught.

The difference of level between Huron and Superior is 21 ft. and on account of the rapids of the St. Mary's river vessels must pass through either the American or Canadian canals and locks which limit the draught to about 20 ft. but practically put no limit on length or breadth, the largest lock being 1,000 ft. long by 100 ft. wide. The Soo river, connecting Superior and Huron, is some forty miles in length, narrow in places and crooked and with a rocky bottom. For vessels passing from Huron into Erie, there are no locks, but the draught is limited by the depth of water at what is known as the Lime Kiln crossing at the foot of the Detroit river where an artificial channel has been cut through the rocks by the government. This depth during the past season has varied from 18 to something under 20 ft. The St. Clair river from Lake Huron to the small Lake St. Clair is better, but there is a narrow dredged channel at its lower end. The Detroit river is a wide and deep stream but at its lower end, the Lime Kiln crossing, before spoken of, is a narrow, crooked and dangerous passage. The passage between Michigan and Huron is wide and deep.

Many of the harbors of the lakes are on the rivers which empty into them, which are all small and have had to be straightened and deepened to accommodate the ships. At Chicago and Cleveland artificial harbors have been made on the lake shore protected by heavy breakwaters. Except on Lake Michigan the depth of water in the harbors is governed by the depth at the Soo river and the Lime Kiln Crossing and seldom exceeds 20 ft. At Escanaba and South Chicago there is about 22 or 23 ft. depth available.

Many of the rivers are so narrow and crowded and so obstructed by bridges that the larger ships now in service can go up them but a very small distance. On Lake Superior the harbors are generally wide, deep and easy of access.

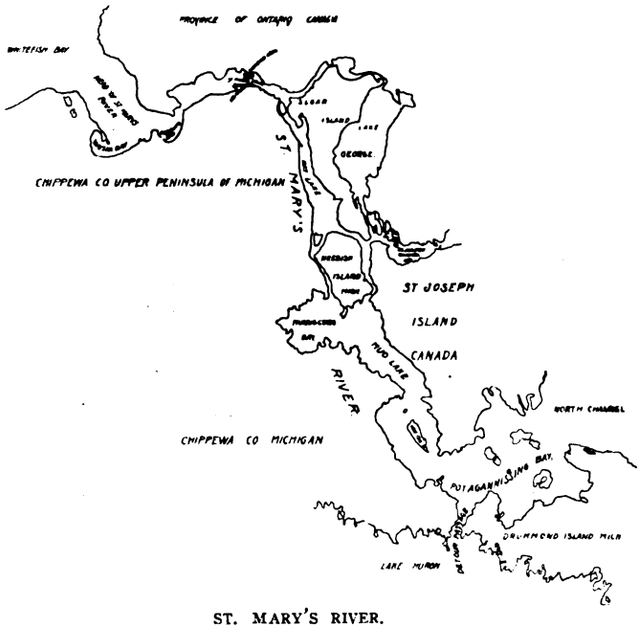
There are no tides on the lakes. The water levels, however, are subject to considerable local fluctuations from the action of winds and also from variations in barometric pressure at different parts of the surface. I have seen the

* A lecture delivered before the classes in naval architecture of the Institute of Technology at Boston, February 14, 1906.

Generated on 2024-08-30 17:57 GMT / https://hdl.handle.net/2027/mdp.39015043584393
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

water at Buffalo raised several feet by a heavy southwest gale and the same at Chicago from a northerly gale, while at the same time the depth at the opposite end of the lake is correspondingly reduced. It is not uncommon for the water level to raise or lower from 6 in. to a foot at any lake port in less than an hour, even when there is no wind, or only a very light one.

Violent gales are not at all uncommon in the spring and late fall months though not often experienced through the summer. The seas raised by them are very short though they may be relatively high. It is very doubtful whether



ST. MARY'S RIVER.

the length from crest to crest of the largest wave is ever much over 200 ft. or the height from crest to trough more than 20 ft.

The season of navigation averages about seven months in length or a little over. Marine insurance ordinarily expires on Dec. 5 but vessels then out are allowed to complete the voyage. The ice ordinarily goes out of the straits of Mackinac between April 15 and 25, opening up Lake Michigan, and out of the Soo river a few days later, but Lake Erie is usually free from ice some days earlier than this, and local boats commence to move. Through the closed season there is no navigation between the different lakes, the connecting channels being blocked with ice, but continuous service by car ferry lines is kept up across the straits of Mackinac, at Detroit, and Port Huron and across Lakes Michigan and Erie and certain passenger steamers run on Lake Michigan from Chicago north all winter.

It occasionally happens, as it did in 1901, that heavy ice forms and jams in the Detroit river in late November catching a large fleet bound for Lake Erie ports which it takes much trouble and expense to release. Similarly, in April of last year, a large fleet entered Lake Superior from below, and came down from Duluth, and spent nearly two weeks in the ice at the lower end of the lake before the advancing season set them free. Many boats were damaged forward by the ice and several collisions resulted.

So much for the physical characteristics of the waters over which lake vessels have to run. Taking now into consideration the character of the business which is done, we find, omitting certain special service boats which will be considered hereafter, that it divides itself naturally into three classes, passenger, package freight and bulk freight. Passenger boats run over the lakes in all directions and are of all types and sizes. The largest and most expensive are the North West and North Land of the Northern Steamship Co., running, one between Buffalo and Chicago and the other between Buffalo and Duluth and making the round trip of 1,800 or 2,000 miles in one week. These boats are some 380 ft. long by 44 ft. beam fitted with twin screws driven by powerful quadruple expansion engines and can make over 20 miles per hour and in finish and appointments compare favorably with any vessels in the world. They carry no freight at all.

On Lake Michigan there are many fine passenger boats running out of Chicago, both single and twin-screw and side-wheelers. Of these the Manitou of the Manitou Steamship Co., the Virginia and the whaleback excursion steamer Christopher Columbus of the Goodrich Line, the latter an interesting freak, the Eastland, City of South Haven, Illinois and City of Chicago are the principal ones.

On Lakes Erie and Huron the passenger business is largely done by side-wheelers, of which the Eastern States and Western States, running between Detroit and Buffalo in a nightly service are the lastest and largest. These boats are 366 ft. long by 45 ft. beam, with triple inclined engines and feathering wheels and make 20 miles an hour easily. The Tashmoo is a large excursion boat used principally on the Detroit river.

There are some large and fast Canadian side-wheelers on Lake Ontario running between Toronto and the mouth of the Niagara river of which the largest is the Chippewa, 308 ft. long.

From Buffalo to Duluth the Anchor line have passenger

ST. CLAIR AND DETROIT RIVERS.

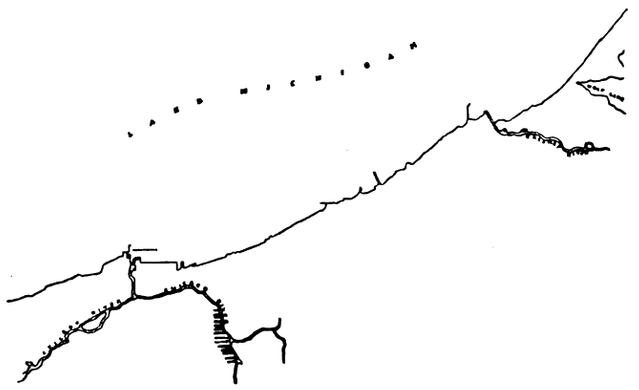
and freight boats in service of which the Tionesta, Juniata and Delaware are the best.

The package freight business on the lakes, that is the transportation of all kinds of merchandise in boxes, bags and barrels and other packages, is done for local business principally by the passenger companies' lines and for through business is entirely controlled by lines which run in connec-

Generated on 2024-08-30 17:55 GMT / https://hdl.handle.net/2027/mdp.39015043584393
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

tion with and are owned by the great trunk railroads. The boats are of various sizes up to about 400 ft. in length with the beam limited to not over 50 ft. as they have to run to docks located in the rivers at Chicago and Buffalo. They are all built with main decks and large gangways through the sides as well as hatches through the upper decks and are fitted with machinery for handling freight between the main deck and the hold.

By far the greatest number of vessels on the lakes, however, are the bulk freighters, carrying iron ore, coal and grain, and the conditions of the service have developed so peculiar a class of vessels, differing so greatly from anything used in any other part of the world, that they merit your close attention. Few people in the east are familiar with the vast extent of this business, which deserves therefore, some explanation in detail and I must ask your indulgence accordingly in giving some rather dry statistics:



CHICAGO AND CALUMET RIVERS.

First in importance in bulk freight comes iron ore. From the Mesabi and Vermillion mines on the north shore of Lake Superior in Minnesota and from the Marquette, Menominee and Gogebic mines on the south shore of the same lake and the west shore of Lake Michigan a steady stream of ore flows during the season of navigation down the lakes to the furnaces of the Chicago district at the head of Lake Michigan on one hand and to those of Cleveland and Buffalo on Lake Erie and through those ports and others to the Ohio valleys and Pittsburg on the other hand. The total shipments of ore by water during the last season, 1905, were about 34,000,000 gross tons.

In the reverse direction, that is, from the mines of Pennsylvania, Ohio and West Virginia, by rail to Lake Erie ports and then by water to the upper lakes, goes each season a heavy tonnage of both anthracite and bituminous coal to supply the wants of the great northwest. This amounted in 1904 to 21,250,000 tons (net). From the fields of the west again there comes a golden stream of grain of all kinds and flour in barrels for eastern consumption and export, the total movement in 1904 by water amounted to 188,000,000 bu. or roughly 5½ million tons. This is mostly loaded at Duluth, Chicago and Milwaukee and unloaded at Buffalo.

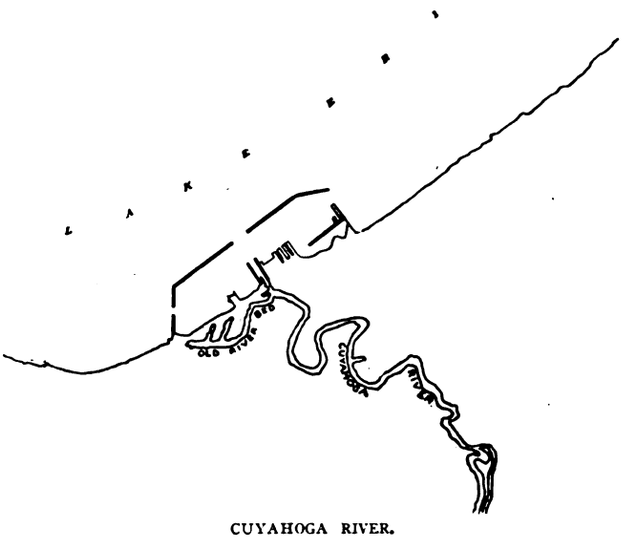
The lumber business is not what it was, but there is still a good deal of lumber brought down from the upper lakes to Chicago and Lake Erie ports.

The entire commerce of the lake system in 1904 exceeded 54,000,000 net tons. The freight tonnage to and from Lake Superior alone, passing through the locks of the Sault Ste. Marie canals around the falls of the St. Marys river, was nearly 32,000,000 tons, being nearly three times the tonnage passing through the Suez canal in a full year. The tonnage passing through the Detroit river in seven months is considerably more than the entire tonnage of London and Liverpool combined in a year.

Until 1855 the only vessels reaching Superior from the lower lakes were a few very small boats which had been hauled overland around St. Marys falls. In that year the first ship canal was completed, with two locks 350 ft. by 70 ft. and 9 ft. lift each, the maximum draught for vessels being 12 ft. Obstructions in the St. Marys river, however, and at the St. Clair flats above Detroit had to be removed by dredging before vessels could utilize the full depth at the locks, while at that time few if any lake harbors possessed 12 ft. of water.

In 1881 a new lock was finished with a draught of 16 ft. and about 1884 the improvement of the harbors and the connecting rivers had reached that depth. The work has been steadily carried on year by year until now a depth of from 19 to 21 ft. is found in the principal harbors and the connecting channels. The last lock at the Soo was opened in 1896 and is 800 ft. long and 100 ft. wide with from 20 to 22 ft. of water over the mitre sills.

The total amount expended by the United States for all the harbors and waterways on the lakes above Niagara Falls since the formation of the government, has been about $70,000,000. The cost of moving a ton of freight one mile on the lakes as shown by United States government reports is about nine-tenths of one mill. A cost of 3½ mills per ton mile is about the lowest reached on railways. The saving, therefore, in one year in transportation by water on Lake Superior commerce alone is more than the entire amount spent by the government in improvements on the chain of lakes. In a far broader sense, however, the water route has been productive of a large part of the wealth of the nation. Without it no such tremendous development as has been witnessed in the iron and steel industries in the last



CUYAHOGA RIVER.

few years could have taken place and the prairies of the northwest would have remained comparatively unproductive and unpeopled.

The first shipment of iron ore from Lake Superior of which we have any accurate record was made in 1852 from Marquette and consisted of the magnificent amount of six barrels full. In 1866 the total shipments were less than 300,000 tons. In the next 30 years up to 1882 the total shipments amounted to about 15,000,000 tons. In that year 3,000,000 tons, were shipped. By 1892 the amount had risen to a little over 9,000,000 tons, in 1897 to 12,500,000 tons, in 1902 to 27,500,000 and during the season of 1905 to 34,000,000.

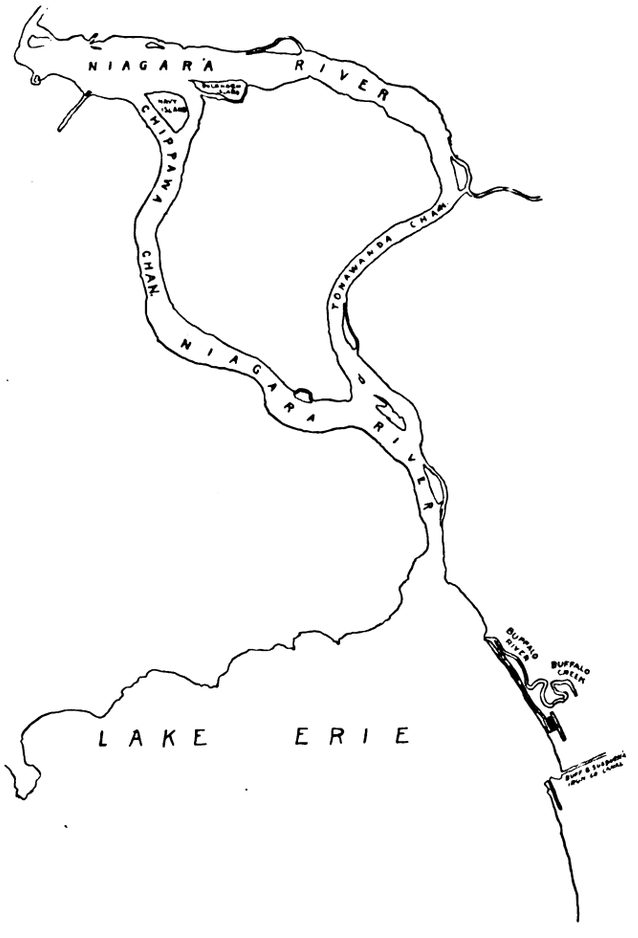
In 1831 the first cargo of grain from Chicago was received at Buffalo. In 1840 the shipments from Chicago were 10,000 bu. By 1860 this had risen to 28,000,000 bu. In 1900 the total was over 300,000,000 bu., but has gradually declined

Generated on 2024-08-30 17:57 GMT / https://hdl.handle.net/2027/mdp.39015043584393
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

until in 1904 it was only 188,000 bu. This is owing to changed conditions in agriculture and live stock, more grain being consumed where raised, and partly also to the gulfward outlet for export grain and the oriental demand for flour.

Statistics of the shipment of coal on the lakes are unreliable and incomplete owing to the fact that the railways moving the coal from the mines to lake ports do not prepare themselves any general report of this movement and on account of close competition in the business will not give out for publication their tonnage statements. The shipments have increased, however, from three or four million tons in 1884 to some 22 or 23 millions this year.

The production of copper from the mines on the south shore of Lake Superior, though its value in dollars has been very great, and it has exercised an important influence on



BUFFALO AND NIAGARA RIVERS.

the development of improved communication with the lower lakes, has had no direct influence on the lake vessels themselves and need not be further considered here. In 1904 the copper shipped by water amounted to only 84,500 tons, though its value was over $22,000,000.

This brief resume of the business done on the lakes must suffice. It is impressive in its rapid and tremendous development, especially during the last decade.

The growth of the lake fleet may be briefly summarized as follows:

In 1825, the year in which the Erie canal was opened, the tonnage above Niagara Falls consisted of three steamers of 772 tons and 54 sailing craft of 1,677 tons or a total of 2,449 tons. In 1830 this had increased to 10,300 tons; in 1841 to 55,181; in 1851 to 153,500; in 1862 to 383,000; in 1882 to 711,000; in 1892 to 1,183,000 and in 1904 to 2,019,000 tons. In 1872 there were on the lakes 1,654 sailing vessels with an average tonnage of 164. In 1904 there were only 623 sailing vessels whose average was 406 tons. In 1872 the 709 steam vessels in service averaged 229 tons only, while in 1904, 1,820 steam vessels averaged 875 tons each. In the same year 1904, which is the last for which statistics are available, the total tonnage of the merchant marine of the United States, including all kinds of documented shipping, was 6,291,535 tons so that it will be seen that 32.1 per cent or nearly one-third was on the great lakes. For the same year the average tonnage of all steam vessels was only 425 tons, so that the average lake steamer was more than twice that size and was nearly three times the size of the average steamer of all other sections of the country.

In the larger class of vessels, of 1,000 gross tons register and over, during the four years ending with June 30, 1904, there were built on the great lakes 1,198,849 tons against 613,690 tons in all other sections of the United States combined. In steel steamers alone 565,229 tons were built on the lakes and only 353,324 tons in all the rest of the country.

In other words the lakes built 61 per cent of all steel steamers over 1,000 tons.

With this brief description of the waters and the business done over them we will now take up the question of the ships themselves with which you are more particularly interested and in what follows I shall confine my remarks almost entirely to the bulk freighters, which form the most distinctive type. Perhaps the first thing that would impress a marine man going from salt water to the lakes is the very full model of these ships. They are only square boxes whittled off a little at the ends and not much at the forward end at that. The reason for this is, of course, the limited draught of water available and the desire to carry as much as possible on that draught. The midship section coefficient is frequently as high as .98, the usual dead rise being but 3 inches at the extreme breadth and the bilge being a section of a circle of about four feet radius. Another universal characteristic, which might well be imitated in salt water freighters, is that about two-thirds of the entire length is absolutely straight and made off of one mold, except for the sheer of the decks. All this results in a high block coefficient, frequently up to 87. As it is not desired to make a better loaded speed than 11 to 12 miles (not knots) this full model is not objectionable and the usual performance coefficients are good.

The next thing that would impress a salt water man is that the machinery is as far aft as it is possible to put it, and the pilot house as far forward. This is done because of the great practical advantage there is in handling cargo from having all the cargo together and the hatches without a break. The ore docks on the upper lakes are high and the ore is carried in pockets well above the ships, into which pockets it is dumped from cars which come direct from the mines. The pockets are 12 feet long, holding about 300 tons each with an inclined bottom and one hinged spout at the center. Hatches on the ships are therefore spaced so that the distance between them is a multiple of twelve. Formerly all hatches were spaced 24 feet center to center and were 8 feet fore and aft, the frame spacing being 2 feet no matter what the size of the boat. Athwartships the hatch is made as wide as possible for two reasons, to allow the spout to be lowered to an angle sufficient for the ore to run when the boat is light, when, on account of her full model she floats high out of water, and also to allow the unloading machinery to reach as near the sides of the ship as possible.

Continually running, as they do, in narrow and rocky channels, lake ships are universally fitted with double bottoms, from which an added protection is secured to the

Generated on 2024-08-30 18:00 GMT / https://hdl.handle.net/2027/mdp.39015043584393
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

upper turn of the bilge by carrying the tank top straight across to the skin. As, in carrying ore, most vessels take no cargo up, these bottoms are utilized for water ballast in bad weather and were continually deepened to carry more water until 5½ ft. was not an uncommon height for the center keelson. Even with that depth, it was quite usual, in a bad gale, to start a manhole and run a large amount of free water into the hold to increase the draught of the ship. Lake vessels have so much beam in proportion to the draught that this involved no danger to the transverse stability, and lake seas are so short that there is not much pitching and therefore little prospects of a rush of the water fore and aft endangering the bulkheads.

While a very few vessels were built with cellular bottoms the ordinary form of construction was the McIntye tank, solid cross floors with longitudinals on top, all of plates and angles. Bulb deck beams were used with angle frames and reverse frames. The tank top was stiffened by Z bars athwartships, with a wood floor on top of them, and wooden spar decks were fitted and occasionally main decks also.

As the ships are continually loaded to the limit of the available draught and therefore often touching the ground in rivers and harbors and the sills of canal locks, besides fetching up against docks and rubbing each other in crowded harbors, there was a great deal of trouble from shearing of frame rivets in bottom and sides, even when no visible damage was done to the plating. In 1894 therefore, I introduced the use of channel sections wherever possible and the channel system of construction soon came into universal application. In this a heavy channel takes the place of the floor frame and reverse frame across the bottom, and a lighter channel is used for the side frames, doing away with the usual reverse bar. Much riveting is saved and there are no frame rivets to be sheared off. Using channel deck beams, a good flat surface is obtained for riveted beam brackets. Main deck beams were spaced 8 ft. centers, and belts or web frames fitted to each, bringing a beam on each side of the hatch and one in the center between hatches. Side stringers, deck ties and stanchions were also of channels. The whole formed a very simple and strong system of construction which all came naturally together and made good workmanship easy, while the duplication of parts lent itself very well to the use of wooden molds made from the lines on the mold loft floor, so that a large part of the work could be sheared and punched and made ready for erection even before the keel was laid. A further advantage was that a great many rivets could be driven by power, both before erection by stationary riveters, and after erection by portable pneumatic riveters, even the shell rivets. I have driven as much as 95 per cent of all the rivets in a ship by power, at a large saving in cost as well as securing much better work.

With the engine at the extreme after end of the ship, the boilers naturally come next to it and then the coal bunkers, the arrangement varying according to the individual preferences of owners and designers. Boilers are sometimes on the tank top, sometimes on a deck raised above it to give cargo space beneath.

A few ships have three boilers which are placed abreast, facing forward with fireroom athwartships and coal bunker next. With two boilers, which is the usual number, the same arrangement can be used or they can stand athwartships, facing each other, with fire room between.

Bunkers are filled at lower lake ports, enough coal being taken for the round trip, or at least sufficient to bring the ship back to the Soo river, where more can be secured at elevated coal pockets with only a few minutes detention.

At many of the lower ports the coal companies have provided fueling scows fitted with steam derricks by which bunkers can be filled while the ore is being unloaded, the scow coming up on the outboard side. The power of lake ships being relatively small and the coal consumption therefore light, the chance of trim caused by the burning of the coal on the short trips is not material. Ships usually leave Lake Superior a few inches by the stern and arrive at the Detroit river about on an even keel.

Scotch boilers, carrying 160 to 180 lbs. steam, are generally used with triple expansion engines. Water tube boilers, working up to 250 lbs. steam have been fitted to a number of ships with quadruple engines, but principally in the vessels of only one company and they are not generally popular. At the present time I believe there are no ships building with water tube boilers.

Both the Howden and the Ellis and Eaves drafts are in general use. Every vessel now building but one has E. & E. draft.

Engines are strong but fairly simple and steel castings are largely used in their construction. Being on fresh water they are universally jet condensing. Feed water heaters and purifiers are largely used and all auxiliary machinery is of the best types. Large pumps and a complete and generous system of piping are fitted for handling water ballast rapidly. Windlasses and capstans are all steam driven, stockless anchors are universal, and powerful steam steerers are used, rudders being always of the balanced type to secure the quickest action. Wire hawsers are universally used, handled by drum hoisters on deck forward and aft.

The captain and mates, wheelsmen and watchmen are housed forward and the engineers, firemen and deck hands, aft, with the galley, dining and mess rooms. Most boats have one or more rooms for owners and guests, which may be forward under the forecastle or in a deck house between hatches, and are often fitted up in the most luxurious style, with private galley and dining room.

Until the last three or four years the unloading bucket used was an ordinary steel tub, holding about one ton, with four small wheels on the bottom. This was carried by wire ropes on a steel bridge of some 300 ft. span, with a folding arm which was lowered to extend out over the ship. The bridge was movable along the face of the dock. As the buckets came down into the hold a gang of shovelers filled them with ore, they were then raised to the bridge by power, carried along it to any desired point and automatically dumped to the storage pile below or into cars for transportation to distant furnaces. With this arrangement it was an advantage to have the ore pile in the ship as shallow as possible so that the shovelers could get through it quickly and have the tank top to work on, and a few boats were fitted with intermediate hatches, only four feet wide fore and aft, which were used for loading only and naturally reduced the height of ore in the main hatches, but this particular arrangement never became popular.

The modern method of unloading is entirely different. Self filling grab buckets are used of five or ten tons capacity, and no shovelers are required except to clean up the last remnants of the cargo. In the Hulett machine, the bucket is carried on the end of a swinging arm in a parallel motion which makes it move in a vertical line. When filled and raised out of the ship, the whole arm is moved back and the ore dumped into a car which runs out on a cantilever extension over the stock pile, or dumped directly into railroad cars at the front of the dock. All motions are worked hydraulically and controlled by one man who rides with the bucket and just above it. The whole machine can be moved along the face of the dock.

Generated on 2024-08-30 17:58 GMT / https://hdl.handle.net/2027/mdp.39015043584393
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

The Brown and the Hoover & Mason buckets are electrically operated. They resemble the old hoists in that the buckets are slung by wire ropes and carried on bridges, with an arm extending out over the ship. They are also operated by one man only, who rides in a cage just under the bridge, like the operator on an ordinary machine shop crane.

By such machines an almost incredible speed has been reached on unloading ships, the record to date being 10,600 tons of ore taken out in 4 hours and 10 minutes. To attain this result, however, the entire construction of the ships has been altered.

It is evident that with the old style unloaders, with small buckets filled by hand in the hold, the usual construction of ships answered very well, and we therefore find that the usual stanchions and main deck beams were fitted, though the latter were spaced 8 ft. centers and no deck was laid on them. With the power buckets, however, these beams and stanchions were very much in the way, and were continually being bent and broken. As the grab buckets work best in a deep pile of ore and cannot reach horizontally much beyond the upper deck hatch lines, the hatches must be closer together, and the more the area of the floor of the hold is restricted the better. The lake ship builders therefore, took the bull by the horns and did away with main deck beams and stanchions altogether, with heavy arches across under the spar deck to make up for them, with hatches spaced 12 ft. centers, frame space of 36 in. and, in many ships, a hopper construction of the inner bottom which brought the ore into one deep pile in the center under the hatches where the unloading buckets can reach all of it. A further advantage of this construction is the large increase on water ballast capacity of the hopper ships, the tanks running up the side to the height of the old main deck stringer.

It may be most emphatically stated that this construction has come to stay as its advantages are undeniable, and every bulk freighter building on the lakes today is of this type.

The large number and great size of the hatches makes the matter of the hatch covers a most important one. The old wooden hatch cover, in easily handled sections, with a waterproof canvas tarpaulin battened down in a variety of ways, is still a favorite with many owners. The time and labor required to handle so many sections in one of the modern ships with thirty or more hatches are so great, however, that some form of cover that can be handled mechanically is almost a necessity. A steel cover, with the sections sliding each way from the center and telescoping on each other, is the best arrangement that has so far been devised. The power is applied either by special engines on deck working through shafting, clutches and chains, or from a gypsy head on the regular deck hoisters through a wire line working in a snatch block opposite the center of each hatch, the covers then being moved in rotation.

A tarpaulin is applied to the steel covers to make them water tight in very much the same way as with wooden covers.

Of special types of lake vessels it is not necessary to say much. There are a number of ferry boats engaged in transporting cars both across the rivers at Detroit and Port Huron and at the Straits of Mackinac and also across the open lake on Erie and Michigan. The former are single deck boats of ordinary type, not differing especially from similar boats in service in other parts of the country. The latter, however, are large and powerful twin screw vessels, fitted to stand any seas and weather and to go through heavy ice. They are entirely closed in forward and over the car deck and the cars go on board and come off again at the open stern. The larger ones are 350 ft. long and carry 30 loaded freight cars at once, and running, as they do, across Lake Michigan, they enable the products of the northwest to be shipped east without breaking bulk and avoid the loss of much time in the crowded yards of Chicago.

Many experiments in vessel transportation have been made on the lakes. A few years ago many large barges were built, carrying up to 8,000 tons each, without propelling machinery and intended to be towed behind a steamer. It has been found, however, that the time lost from one boat of the pair having to wait for the other to complete loading and unloading more than balanced the saving and no more are being built.

About 1888 the first whaleback barge was built on the lakes and in the next ten or twelve years some forty in all, steamers and barges were turned out. Only four of these, however, were for outside parties, the others being all owned and operated by the company that built them. Experience failed to demonstrate any advantages in the type of their construction ceased some years ago.

There are altogether about ten ship yards on the lakes engaged in building large steel steamers. These are controlled by four different companies, of which the American Ship Building Co. is the largest, operating six yards at various points, as well as three repair yards, sixteen basin and three floating dry docks. This company last year launched twenty steamers of a total of 117,482 gross registered tons, being more than any other ship building company in the world, and has on its books at the present time orders for 29 steamers for delivery during the present year. These include six steamers which will each be 600 ft. long over all.

Lake boats are universally built on a level keel and launched sideways. The mold system of construction is used almost entirely, and is particularly applicable to these boats, because of their simple and open construction and the duplication of parts. The building yards are well supplied with tools and over-head cranes serve the building berths. Frequently a large amount of material for a ship is fitted and punched before the keel is laid, so that, once started, the construction is very rapid. A 9,000-ton ship has been built and gone into service in less than 90 days from the laying of the keel.

In a decision by I. F. Fischer, the board of United States general appraisers yesterday overruled claims filed by the William Cramp & Sons Ship & Engine Building Co. of Philadelphia regarding the classification, under the Dingley tariff, of merchandise invoiced as manganese iron alloy, and copper and tin alloy. Duty was assessed on the former at the rate of 8 cents a pound as an alloy of which aluminum is the component material of chief value, and on the latter at the rate of 45 per cent ad valorem as an article composed of metal not specially provided for. Several claims for lower duty were made by the Philadelphia concern, but none of them was deemed well founded by the general board, and the protest was therefore overruled. General Appraiser Fischer points out, however, that the circuit court of appeals at Philadelphia has held that all the merchandise in question is dutiable at 20 per cent as metallic mineral substances. It is significant that the federal court of appeals at New York has handed down a decision entirely at variance with the conclusion reached by the Philadelphia tribunal. The alloys are used by Cramps in hardening certain metals.

The steamer Callahan, building for the Norfolk & Washington Steamboat Co., Washington, D. C., at the yard of the Harlan & Hollingsworth Corporation, Wilmington, Del., will be launched about the middle of March.

Generated on 2024-08-30 18:04 GMT / https://hdl.handle.net/2027/mdp.39015043584393
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

ANNUAL MEETINGS OF STEAMBOAT LINES.

The annual meetings of a number of steamboat lines, whose offices are registered in Michigan, were held at Detroit recently. Two transportation companies disappear from the list. The Percheron Navigation Co. formerly operated the steamer Thomas W. Palmer which was sunk in Lake Superior last year in collision with the steamer Harvard. The Vulcan Transportation Co., which operated the steamer Hackett and the barge McGregor, has sold both vessels and will dissolve. Following are the directors and officers of the other lines:

Detroit & Cleveland Navigation Co.—Officers: W. C. McMillan, president and general manager; James McGregor, vice president; Hugh McMillan, treasurer; Philip H. McMillan, secretary; George M. Black, assistant treasurer; B. C. Wilder, general auditor. Directors: W. C. McMillan, Hugh McMillan, George Hendrie, James McGregor and A. A. Schantz.

Detroit & Buffalo Steamboat Co.—Officers: George Hendrie, president; A. C. Angell, vice president; W. C. McMillan, treasurer; B. C. Wilder, secretary; George M. Black, assistant treasurer. Directors: George Hendrie, W. C. McMillan, Strathern Hendrie, Phillip H. McMillan, D. C. McIntyre, Calvary Morris, A. A. Schantz, A. C. Angell and B. C. Wilder. The appointments of A. A. Schwantz and D. C. McIntyre as general superintendent and passenger traffic manager and general freight traffic manager, respectively, of the two lines named above have again been made.

Adams Transportation Co.—John Craig Sr., president; John Adams, vice president; John Craig Jr., secretary; Thomas Adams, treasurer and general manager. Directors: The above and George L. Craig.

Monroe Transportation Co.—John Craig Sr., president; John Adams, vice president; John Craig Jr., secretary; Thomas Adams, treasurer and general manager. Directors: The above and George L. Craig.

Whitney Transportation Co.—D. C. Whitney, president and treasurer; John Davell, vice president; F. G. Austin, secretary.

Hope Transportation Co.—T. S. Christie, president; C. D. Hayward, vice president; W. R. Stafford, treasurer; John A. Francombe, manager and secretary.

Wayne Transportation Co.—John A. Francombe, president and manager; W. G. Tueson, secretary; E. McWilliams, treasurer.

Michigan Steamship Co.—Stockholders' meeting held at Utica, at which the following directors were chosen: John B. Roby, California; Frank J. Hecker, Watson M. Freer, W. C. McMillan, Philip H. McMillan.

Wolverine Steamship Co.—Stockholders also met at Utica and elected the same list of directors as above. Officers of the two companies will probably be elected by the directors today.

Michigan Navigation Co.—William Livingstone, President, treasurer and manager; T. W. Palmer, vice president; W. A. Livingstone, secretary.

Nipigon Transit Co.—A. K. Kiefer, president; David Milne, vice president; secretary-treasurer, O. L. E. Weber.

Stockholders' meeting and election of officers of the Ionia Transportation Co. will be held February 13.

A satisfactory year is reported by the steamship companies generally. The passenger lines, particularly, did a good season's business.

Duluth & Atlantic Transportation Co.: Hugh McMillan, president; W. C. McMillan, vice president; Philip H. McMillan, secretary; George M. Black, treasurer; directors, above and W. K. Anderson.

White Star line: A. A. Parker, president; L. C. Waldo, vice president; John Pridgeon, treasurer; C. F. Bielman, secretary and traffic manager; B. W. Parker, general manager. Directors, above and Hugo Scherer, James H. Muir, Robert T. Gray and A. W. Colton.

Northwestern Transportation Co.: Harvey H. Brown, Cleveland, president; L. C. Waldo, secretary, treasurer and manager. Directors, above, W. B. Davock, of Cleveland, and A. F. Peck and George E. Berriman. Office of vice president, hitherto held by Stephen Hartnell, has not yet been filled.

Roby Transportation Co.: John B. Roby, California, president; Capt. John Duddleson, Sault Ste. Marie, vice president; L. C. Waldo, secretary, treasurer and manager.

J. Emory Owen Transportation Co.; J. F. Owen, president; W. J. Gray, vice president and treasurer; Robert T. Gray, secretary.

Stewart Transportation Co.: George Peck, president; A. E. Stewart, vice president and general manager; C. F. Bielman, secretary-treasurer. Directors, above and J. H. Barlum and George Lesher.

American Steamship Co.: Hugh McMillan, president and treasurer; W. C. McMillan, vice president; M. B. McMillan, secretary. Directors, above and M. W. Aldrich and G. M. McMillan.

EMPLOYES MUST USE CAUTION.

Judge J. J. DeHaven, of the United States Circuit Court, of California has just rendered an important marine decison in the damage suit of Victor Mattson, against the steamer Fulton. Mattson, a seaman, while working on the vessel, was seriously injured by the parting of a rope sling by which lumber was being hoisted from the hold. It was shown that six or eight slings were being used on the Fulton, and that some of them becoming worn were replaced by new ones. The one that broke, was, however, an old one. The court decided adversely to Mattson's claim for damages, holding that while it was incumbent upon the master of a vessel to provide reasonably safe and fit material for appliances, he was not compelled to procure the very best obtainable. The court also held too, that it is to a large extent, the duty of employes to look out for the general safety of appliances and is not the special duty of the master to look out for matters of mere detail; and that during the absence of the vessel's owner or master, the crew should have taken every precautionary measure.

Considering that the master of the Fulton had observed all the precautionary measures required of him, the court dismissed the suit.

SHIP BUILDING DURING JANUARY.

The bureau of navigation reports sixty-one sail and steam vessels of 11,729 gross tons were built in the United States and officially numbered during January, 1906, as follows:

	WOOD				STEEL		TOTAL	
	Sail		Steam		Steam			
	No	Gross	No	Gross	No	Gross	No.	Gross
Atlantic and Gulf	11	2,173	33	1,691	2	393	46	4,257
Porto Rico	....	....	....	....	....	....	....	....
Pacific	2	19	5	372	....	....	7	391
Hawaii	....	....	....	....	....	....	....	....
Great Lakes	....	....	....	....	1	6,909	1	6,909
Western Rivers	....	....	7	172	....	....	7	172
Total	13	2,192	45	2,235	3	7,302	61	11,729

E. T. Crisp, manager of the Great Lakes Laundry Co., Sault Ste. Marie, Mich., is at present visiting Cleveland and Chicago purchasing new machinery for his laundry which does the bulk of the laundry work on lake steamships.

Generated on 2024-08-30 17:55 GMT / https://hdl.handle.net/2027/mdp.39015043584393
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

THE MARINE REVIEW

DEVOTED TO EVERYTHING AND EVERY INTEREST CONNECTED OR ASSOCIATED WITH MARINE MATTERS ON THE FACE OF THE EARTH.

Published every Thursday by

The Penton Publishing Company

CLEVELAND.

CHICAGO: MONADNOCK BUILDING.
PITTSBURG: PARK BUILDING.
NEW YORK: 150 NASSAU STREET.

Correspondence on Marine Engineering, Ship Building and Shipping Subjects Solicited.

Subscription, $3.00 per annum. To Foreign Countries, $4.50. Subscribers can have addresses changed at will.

Change of advertising copy must reach this office on Thursday preceding date of publication.

The Cleveland News Co. will supply the trade with the MARINE REVIEW through the regular channels of the American News Co.

European Agents, The International News Company, Breams Building, Chancery Lane, London, E. C. England.

Entered at the Post Office at Cleveland, Ohio, as Second Class Matter.

FEBRUARY 22, 1906.

PRINTED IN AN OPEN SHOP.

THE SHIPPING BILL PASSES THE SENATE.

By a vote of 38 for to 27 against, the senate on Feb. 14 passed the Roosevelt-Congressional Merchant Marine Commission's shipping bill. For the convenience and information of our readers we summarize the provisions of the bill, without its verbiage, as it passed the senate: It creates, subject to the regulation and direction of the secretary of the navy, a naval reserve force drawn "from the officers and men now and hereafter employed in the merchant marine and fisheries of the United States, including the coastwise trade of the Atlantic and Pacific and the great lakes, such officers, petty officers, and men as are capable of rendering service as members of a naval reserve, for duty in time of war," etc. All members must be citizens by birth or naturalization. They are to be enrolled for four years, during which time they may be called upon for service in time of war. Their pay will be as follows: Each officer having rank of lieutenant, $110; lieutenant (junior grade) $90; ensign, $80; chief petty officer, $70; petty officer, first class, $60; petty officer, second class, $48; petty officer, third class, $40; each seaman, first class, $36; seaman, second class, $30; seaman, third class, $24. annually. Their total shall not exceed 10,000. To cargo vessels (steam over 1,000 gross and sail over 200 gross tons) engaging in the foreign trade for a year, $5 per gross ton; if engaged for less than a year or more than nine months, $4 per gross ton, and if less than nine months and more than six months, $2.50 per gross ton per annum, nothing for any period less than six months. The same provision to deep-sea fishermen over 20 gross tons register. The foregoing does not apply to a vessel for a voyage on which the principal part in bulk of her cargo has been transported from one port of the United States to another port of the United States, to a vessel while exclusively employed in carrying between foreign ports, or a vessel for a voyage extending less than 150 miles from her last port of departure in the United States, or for a voyage from a foreign port less than 150 miles from her first port of arrival in the United States. For such vessels engaging in trade between ports of the United States and ports of the Philippines the subsidy shall be 30 per cent greater than above specified. The vessels thus aided may be taken by the government at any time, payment for their use to be settled by arbitration, if an agreement cannot be arrived at. Such vessels must carry the mails free when so required. No such vessel shall receive any additional "subvention, subsidy or bounty," from the United States. Until 1912 one-sixth, and after that one-fourth of the crew must be citizens of the United States, or men who have declared their intention to become citizens, "and of the navigating force on deck, excluding licensed officers, at least one-half shall be able seamen, who are hereby defined to be men who have had two years' or more experience on deck at sea or on the great lakes. Such vessels, if steam vessels, must class A1, and if sail, at least A1½. All ordinary repair or overhauling of such vessels must be made in the United States, if a dry dock is within 500 miles of the ship when needing such repairs. The subvention is not to be paid to such vessels if the following proportion of their crews are not members of the naval reserve: after July 1, 1908, one-eighth; after July 1, 1912, one-sixth; after July 1, 1917, one-fourth. These contracts shall run from year to year.

For the establishment of mail lines, for periods of not less than five nor more than ten years, through contracts with the Postmaster-General, as follows: From an Atlantic port to Brazil, on steamships of not less than 14 knots speed, for a monthly service not to exceed $150,000 a year, and for a fortnightly service not to exceed $300,000 a year. From an Atlantic port to Uruguay and Argentina, on steamships of not less than 14 knots, for a monthly service, not to exceed $187,500 a year, or for a fortnightly service not to exceed $375,000 a year. From an Atlantic port to South Africa of steamships of not less than 12 knots,

Generated on 2024-08-30 18:01 GMT / https://hdl.handle.net/2027/mdp.39015043584393
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

for a monthly service not exceeding $187,500, or for a fortnightly service not exceeding $375,000 a year. From a Gulf port to Brazil, on steamships of not less than 12 knots, for a monthly service not exceeding $137,500, or for a fortnightly service not exceeding $275,000 a year. From a port on the Atlantic or Gulf south of Hatteras, to Cuba, on steamships of not less than 14 knots, for a weekly service, not to exceed $75,000, or for a semi-weekly service not exceeding $125,000 a year. From each of two ports of the United States on the Gulf of Mexico and from New Orleans to Central America and to the port of Cristobal, Panama, on steamships of not less than 12 knots, for a weekly service, not to exceed $75,000 a year. From a Gulf port to Mexico, on steamships of not less than 12 knots, for a weekly service, not to exceed $50,000 a year. From a Pacific port via Hawaii to Japan, China, and the Philippines, on steamships of not less than 16 knots, for a monthly service, not to exceed $300,000, or for a fortnightly service, not exceeding $600,000 a year. From each of two ports, Puget Sound or the Columbia river, to Japan, China, and the Philippines, on steamships of not less than 13 knots, for a monthly service, not to exceed $210,000, or for a fortnightly service not to exceed $420,000 a year. From a port of the Pacific via Hawaii and Samoa to Australasia, on steamships of not less than 16 knots, for a service once in three weeks, at a maximum compensation not to exceed $217,000, in addition to the compensation now received by such line, under act of March 3, 1891. From a Pacific port to Mexico, Central America and Port La Boca, Panama, on steamships of not less than 12 knots, for a fortnightly service, at a maximum compensation not to exceed $120,000 a year. To American vessels carrying American boys who are to be trained in engineering or navigation, one for each thousand net registered ton of the vessel, there shall be rebated eighty per cent of the tonnage duties paid by such vessel. The law is to take effect July 1, 1906, and congress reserves the right to alter, amend or repeal it without impairing any obligation or specific contract made under it.

PEAVEY WOOD WORKING HOUSE BURNED.

Duluth, Minn., Feb. 19.—The Peavey Duluth Terminal wood working house burned to the ground on Saturday night and is a complete loss. The house was worth about $300,000 and contained 600,000 bus. wheat, 100,000 bus. flax, 200,000 oats and 65,000 bus. rye, worth $995,000. The grain was fully insured and the elevator within $25,000 of that, so the total insurance loss is about $970,000. The adjacent concrete house, built as fireproof by the Peavey company, and containing 2,000,000 of wheat and 500,000 of flax, was not injured at all, though within 30 ft. of the intense heat of the burning structure. This heat was so great as to melt rails and crumble brick and stone, while the draft created by the fire through the high dry wood bins threw sheets of galvanized steel covering high in the air and landed them 300 to 400 ft. away, on the ice. There is no theory as to the origin of the fire, which does not seem to have originated in any way common to fires. A temporary machinery plant to handle the grain out of the concrete house on the opening of navigation, will be erected before that time, and another working house, probably of steel, will be constructed during the summer. The fire demonstrated the fireproof capacity of the concrete bin system, and was of great interest to elevator builders on that account. A steel house subjected to such heat would have quickly fallen to the ground, and it is thought that even a tile house, protected by steel bands, would have met a like fate.

MARINE NOTES FROM CANADA.

In at least one department of aid to navigation, and that the latest, Canada is probably ahead of any other country in the world; that is in the utilization of Marconi system of wireless telegraphy as applied to signaling ships at sea. The federal department of marine has now in operation ten high power and three low power Marconi stations. These ten stations govern the whole of the Gulf St. Lawrence and the Atlantic coast waters far seaward from Newfoundland to the Bay of Fundy. The stations are situated at the following places: Fame Point, Quebec; Health Point, Antecoste; Whittle Point, Labrador; Point Armour, Forteau; Belle Isle; Point Rich, Cape Race and Cape Ray, Newfoundland; Sable Island; the "Atlantic Graveyard," Camperdown and Cape Sable Island, Nova Scotia; Partridge Island, New Brunswick, and Cape Bear, P. E. Island. The significance of this service is appreciated by the ease with which communication was had and maintained with H. M. S. Dominion, the British warship which conveyed to Canada the remains of the late minister of marine, Hon. R. Prefontaine. The warship got in touch with the Canadian wireless system when 950 miles from Halifax, and every detail of the ceremonial at that port had been arranged by exchange of telegraph messages long before the Dominion entered Halifax harbor.

The benefits of the wireless stations are, of course, only for ships equipped with the Marconi apparatus, but the system is being installed in an increasing number of vessels every year. The cost of a ship apparatus, such as the steamers of the marine fishery protective fleet are equipped with, is about $1,800. The high shore stations cost the government $8,800, and the stations of lesser power $5,000 each.

Capt. Bernier is still importuning the Dominion government for the use of the steamer Arctic for a voyage of polar discovery. His suggestion this time is that as soon as navigation opens the steamer be dispatched to Hudson Bay with the necessary supplies for the North West mounted police posts there, and that immediately this service has been performed, the Arctic return to Halifax, and proceed around Cape Horn to the Pacific Coast. At Victoria he would have the vessel refitted and supplied for a voyage to the pole, entering the Arctic ocean by Bering Straits, and taking up a position in the Arctic ocean, from which, he figures she would be carried by the drift of the ice pack, across the polar basin.

The Clyde Steamship Co. of New York has been sold to the Charles W. Morse interests and a new corporation known as the Clyde Steamship Co. of Maine has been formed to take over the Clyde Line. Mr. Calvin Austin has been elected president of the line and Mr. H. M. Campbell treasurer. Mr. Austin is one of the most progressive men associated with the steamship business on the coast. Mr. Austin is also president of the Metropolitan Steamship Co. and also of the Eastern Steamship Co. Mr. Campbell is president of the Peoples' Line.

Generated on 2024-08-30 18:02 GMT / https://hdl.handle.net/2027/mdp.39015043584393
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

W. P. SNYDER.

MISS MARY B. DYER.

CAPT. HENRY PETERSON.

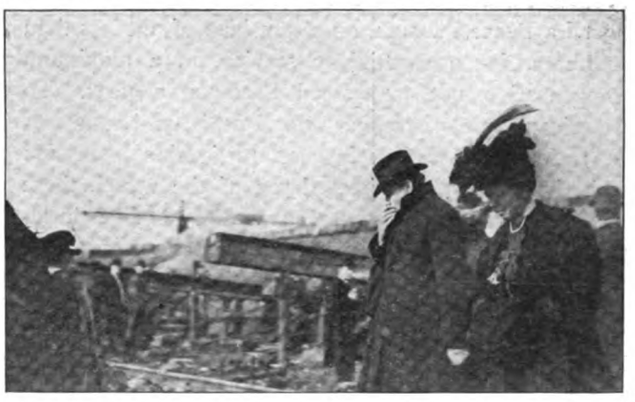
LAUNCH OF STEAMER WILLIAM P. SNYDER.

Another link has been made in the great chain which is being forged to connect the iron making industry of the country with the sources of its raw material. One of the characteristic features of the past two or three years has been the distribution of the great steel making companies to control the avenues of transportation leading from their mines to their furnaces. This policy has resulted in the placing of a number of orders for freighters with lake ship yards. The latest vessel of this class to be launched was the Wm. P. Snyder which went overboard at the Ecorse yard of the Great Lakes Engineering Works of Detroit on Saturday last. This steamer is

MR. W. B. DAVOCK, MANAGER OF THE SHENANGO STEAMSHIP CO., MISS MARY B. DYER AND MR. C. D. DYER.

building for the Shenango Steamship Co. of Cleveland and is intended to carry the ore of the Shenango, Webb and Whiteside mines owned and operated by the Shenango Furnace Co. This new steamer is one of the largest on the lakes, being 550 ft. over all, 530 ft. keel, 56 ft. beam and 31 ft. deep. She has thirty-three hatches, spaced 12 ft. centers. Her engine is triple expansion with cylinders 23, 37 and 63 in. diameters by 42 in. stroke, supplied with steam from two Scotch boilers 15 ft. by 12 ft., with induced draft and allowed 175 lbs. pressure. The steamer will carry 10,000 gross tons of ore.

The launch was successful in every way. The launching party left on a special car and had luncheon enroute to the ship yard. The steamer was christened by Miss Mary B. Dyer, of Pittsburg, daughter of Mr. C. D. Dyer, secretary of the Shenango Steamship Co. Mr. Wm. P. Snyder after whom the vessel is named, was unable to be present as he is in the south with his family. Those in the launching party included the following: From Pittsburg, Charles H. McKee; C. H. Hayes, vice-president Pittsburg Trust Co.; Henry Irwin Jr., treasurer Shenango Furnace Co.; C. D. Dyer, vice president Shenango Furnace Co.; W. A. Barrows, Jr., general manager Shenango Furnace Co.; A. W. Renwick, O. P. Scaife, Jr., S. C. Irwin, Mrs. Dyer, Mrs. Renwick, Mrs. Barrows, Mrs. Irwin, Mrs. H. D. Rankin, Miss Christine Beale, Miss Mary B. Dyer. From Cleveland: R. P. Ranney, W. B. Davock, H. M. Herriman, Ralph D. Mitchell, Capt. Peter-



MISS ANNIE RUSSEL AND MR. JOHN A. UBSDELL.
Query after the launch. What was it Miss Russel said to Mr. Ubsdell?

son, Mrs. Ranney, Mrs. Davock. From Detroit: George H. Russel, H. C. Potter, Jr., H. P. Davock, L. C. Waldo, Alexander K. Gage, Harlow N. Davock, Clarence W. Davock, Antonio C. Pessano, John R. Russel, Mrs. Russel, Mrs. Davock, Mrs. Waldo and daughters, Mary and Louise, Mrs. Gage. From Ypsilanti: Miss Nan Olmstead. Prof. H. C. Sadler of the University of Michigan embraced the opportunity to attend the launch with about thirty students in his class in marine engineering and naval architecture.

Money will not be spared to make the Snyder in respect to interior furnishings one of the most elegant freighters on the lakes, Mr. Snyder having personally made a donation for this purpose. The new steamer will be sailed by

Generated on 2024-08-30 17:54 GMT / https://hdl.handle.net/2027/mdp.39015043584393
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Capt. Henry Peterson, one of the most competent masters on the lakes.

THE "INDIANA" CLAIM IN THE COURT OF CLAIMS.

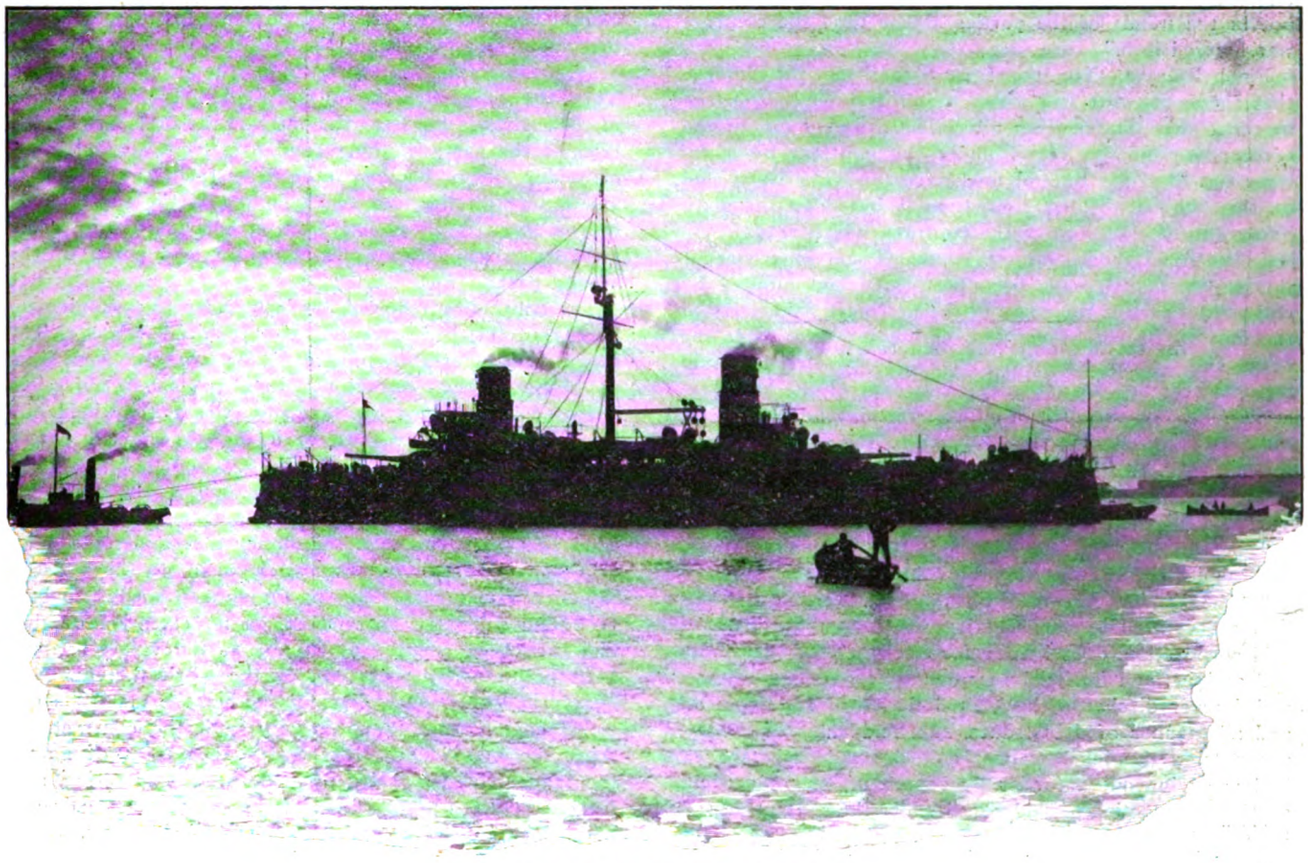
BY GEORGE A. KING AND WILLIAM B. KING, MEMBERS OF THE BAR OF THE COURT OF CLAIMS.

The suit of the Wm. Cramp & Sons Ship & Engine Building Co., based upon the contract for building the Indiana, has recently been decided by the court of claims. Interest in the questions involved is not confined to shipbuilding contractors alone, as the principles declared in the decisions are general in their application to government contracts.

The Facts.—The contract for building the Indiana was made on Nov. 18, 1890. The vessel was to be completed in three years and the United States was to pay $3,063,000 for the vessel, but the armor plate was to be furnished by the United States to the contractor. The Indiana was not completed until Nov. 19, 1895, two years after the date fixed for it. The contractor made claim for an extension of the time as permitted by the contract and the secretary of the navy, upon full consideration, declared, as he was authorized to do, that the delays were due entirely to the United States in failing to furnish the armor plate on time. He, therefore, extended the time for completing the vessel for two years. This suit was brought before the court of claims for damages arising through delay to which they were subjected by the United States and the result of the suit was a judgment in favor of the company for $135,560.

The Defenses.—There were three separate grounds of defense made by the United States. The first was that the extension of time for completing the vessel was the only remedy granted by the contract for delay by the government and that the contractor, by receiving this, was deprived of any right to claim damages on the same account. The second was that the contractor had signed, at the time of receiving the final payment, a full release discharging the United States for any penalties arising out of the claim. The third, going only to a part of the claim, was that before the contract was completed the contractor had released the government from any liability for delay up to that time. These three defenses the court of claims considered at great length.

Extension of Time.—The contract provided that, if the completion of the vessel was delayed beyond the time fixed by it, the secretary of the navy should decide what was the cause of the delay and whether it was due to the United States or the contractor. The contractor agreed in the contract to accept the opinion of the secretary on this point, and if he decided that the contracting corporation was at fault, it became liable to heavy damages. The United States contended that when the secretary extended the contract for a period equal to the delay caused by the government and thereby relieved the contractor from any claim against it for damages, the contractor was thereby granted the full measure of relief contemplated by the contract and could not sue for any damages caused by the government's delay.



JAPANESE BATTLESHIP KASUGA.

The court considered a number of decisions of state courts on this same subject and decided that there were such differences between them and this case that they could not be considered as affecting the rights of this contractor. A conclusion was reached in favor of the right of the contractor to claim damages in spite of the allowance of additional time, the court saying: "The claimant could have completed the vessel within the time agreed upon, but for the default of the government; and

Generated on 2024-08-30 17:55 GMT / https://hdl.handle.net/2027/mdp.39015043584393
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

to hold that the granting of additional time for such default precludes the claimant from the recovery of damages, if otherwise entitled thereto, would, it seems to us, be reading into the contract a provision not in the minds of the parties when the contract was entered into.

"From the language of the ninth clause of the contract it is evident that what was in the minds of the parties was that if, through the fault of the claimant, the vessel was not completed within the contract time, then the penalties by way of deduction from the contract price might be imposed; but if delayed by the fault of the government, then additional equivalent time should be allowed, not in lieu of the compensation for damages for such delay, but to enable the claimant to proceed to complete the vessel. As the claimant by the terms of the contract agreed that additional time should be allowed, equivalent to such delay, it thereby waived its right to terminate the contract for that cause; but the question of waiving its right to damages growing out of such delay, was certainly not in the minds of the parties at the time the contract was entered into."

Final Release.—The court next took up the defense that the contractor had given a full and final discharge to the United States from all claims growing out of the construction of the vessel under the contract by a release signed at the time of final payment. The court said on this subject: "That contention is based on the sixth paragraph of clause 19 of the contract, which reads:

" 'When all the conditions, covenants and provisions of this contract shall have been performed and fulfilled by and on the part of the party of the first part, said party of the first part shall be entitled, within ten days after the filing and acceptance of its claim, to receive the said "special reserve," or the surplus, if any, of the said "reserve fund," or so much of either as it may be entitled to, on the execution of a final release to the United States, in such form as shall be approved by the secretary of the navy, of all claims of any kind or description under or by virtue of this contract.' "

"The release which was signed by the claimant May 18, 1896, under the provision of the contract is as follows:

" 'The William Cramp & Sons Ship & Engine Building Co., represented by me, Charles H. Cramp, president of said corporation, does hereby for itself and its successors and assigns, and its legal representatives, remise, release, and forever discharge the United States of and from all and all manner of debts, dues, sum and sums of money, accounts, reckonings, claims, and demands whatsoever, in law or in equity, for or by reason of, or on account of, the construction of said vessel under the contract aforesaid.' "

After full consideration of the decisions of other courts and a careful examination of the exact terms of the release and of the provisions in the contract requiring it, the court made a discrimination between the claims described in the release "under or by virtue of this contract" and decided that the claim for damages by reason of the delay did not come within its terms and could be covered in spite of the release. The court said: "Whatever damages the claimant suffered grew out of the breach by the government and not by the claimant in its performance and fulfillment of the 'conditions, covenants, and provisions' of the contract. The claim, therefore, having arisen out of such breach was not the subject of release contemplated by the contract, nor was it embraced in the final release.

"In the present case the claimant was, when it had performed and fulfilled 'all the conditions, covenants, and provisions of the contract,' entitled, 'within ten days after the filing and acceptance of its claim, to receive' final payment, upon the execution of a release to the United States 'of all claims of any kind or description under or by virtue of this contract.'

"As no damage grew out of the performance of the contract by the claimant, no claim was predicated thereon; and as the contract does not provide for the release of claims for damages arising out of a breach by the government, the signing of the final release does not, for the reason above stated, conclude the claimant from a recovery, if otherwise entitled."

Release Pending the Contract.—These conclusions of the court opened the way to the contractor for a recovery on the entire claim, but it was then met by another release signed on May 10, 1894. At this time the work was in arrears under the contract, but the secretary of the navy had not decided that the delay was due to the government's fault. There was a large retain provided in the contract, which, by reason of the delay, was operating with great severity upon the contractor. A supplemental contract was executed on May 10, 1894, reducing the retain and permitting the advance to the contractor of a considerable sum reserved in the original contract. Then the supplemental contract said: "In consideration of such advance payment the party of the first part hereby releases the party of the second part from all and every claim for loss or damage hitherto sustained by reason of any failure on the part of the party of the second part to comply with its contract or on account of any delay hitherto occasioned by the action of said party of the second part."

The contractor received $234,830 under this supplementary contract and executed the required release. The court said upon this release: "We are not free from doubt, but as the contractor, without protest or objection, executed the modfied contract and release, they held him to it because on the faith of it the government parted with its money."

They supplemented this conclusion by the following reasoning: "At the time of the modification of the contract and the payment of the money thereunder the question of responsibility for the delay had not been determined nor was such delay at the time conceded to have been caused by the government, as no extension of time had then been granted by it, and as the vessel had not been preliminarily accepted nor the work thereon sufficiently advanced to determine whether the materials and workmanship were in conformity with the contract, we think the modified contract and the payment of money thereunder was supported by sufficient consideration, and, further, that the modification of the contract as made was within the authority of the secretary of the navy.

"It is a familiar principle of law that one who accepts the terms of a contract in part must accept the contract as a whole. The claimant accepted the money under the contract before it was in fact due, and in consideration thereof executed the release whereby it released the government 'from all and every claim for loss or damage hitherto sustained by reason of any failure' on the part of the government 'to comply with its contract or on account of any delay hitherto occasioned' by it."

As a result of this decision, all the loss and damage which accrued to the government up to May 10, 1894, was disallowed by the court of claims and the calculation of loss and damage began from this date and extended until the completion of the vessel. The amount disallowed on this account was $42,263.55. This sum, it seems highly probable congress will ultimately pay to the contractor as it was a loss which the company suffered on account of the failure of the government to live up to its contract.

Generated on 2024-08-30 17:55 GMT / https://hdl.handle.net/2027/mdp.39015043584393
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

It is not easy for the reader of this opinion to make the discrimination between these two releases which the court of claims itself makes, holding the one sufficient and the other insufficient to relieve the government from the claim of the contractor. The court itself admits the difficulty of the discrimination. The final release was declared invalid as regards this claim, because the claim was not within the terms of the release; the former release was upheld on the ground that it was based upon a consideration moving from the United States, that being the payment of money which otherwise would not have been paid at that time. Such consideration was lacking in the case of the final release, as nothing was paid which was not conceded to be then due.

Principles Decided.—The importance of this decision to contractors with the government is very great. It declares, first, that the provision in contracts allowing an extension of time do not operate to prevent a claim for damages for delay for the very same causes on account of which the extension of time is granted. It next declares that any final release executed after a contract is performed, as a condition for receiving payment of what is admittedly due, will be construed with the utmost strictness and not be extended beyond the necessary import of its terms. And, finally, it decides that a release which might otherwise be invalid will be valid if supported by a consideration moving from the United States not then payable unless the release had been executed.

Some space is devoted in the opinion in determining just what damages would be allowed for delay under such condition. There were four items allowed, the first for the share of the use of the yard, machinery, tools and superintendence properly chargeable to the construction of this vessel during the period of delay; the second for the necessary care and protection of the vessel during the same period; the third for a reasonable wharfage; and the fourth for the insurance which by the contract the contractor was obliged to carry during the same period.

It is understood that there are other ship builders who have claims which will probably now be presented as the result of this favorable decision. The same corporation has claims now pending based on the contract on the Alabama and other vessels.

CONTRACT FOR CAR FERRY.

The American Ship Building Co. has closed contract with the Ann Arbor Railway Co. for a car ferry to operate between Frankfort and Menominee on Lake Michigan. The new ferry will be 270 ft. over all, 52 ft. beam and 36 ft. deep. She will have two triple expansion engines with cylinders 14, 22½ and 38 in. diameters by 13 in. stroke, supplied with steam from two Scotch boilers 12 ft.-10½ ft. diameter and 13 ft. long, allowed 175 lbs. pressures. The car ferry will have a capacity for twenty-two cars and will have all the equipment necessary for her cross lake trips. She is promised for delivery next November.

RICHELIEU & ONTARIO NAVIGATION CO.

The annual report of the Richelieu & Ontario Navigation Co. of Montreal shows gross earnings of last year of $1,217,373.61, an increase of $217,504 over 1904 and a net profit after providing for fixed charges and interest of $239,294.55, being an increase over the previous year of $144,981.62. The operating expenses were 78.86 per cent of the gross earnings as against 88.64 per cent for the year 1904. The bond issue of the company originally amounting to $571,833.33 now stands at $351,373.35, the company having redeemed $27,253.33 during the year. The heavy traffic of last season and the increased movement of tourists and commercial business generally necessitates building steamers of greater capacity. The company has accordingly placed an order for a new steamer for the St. Lawrence river rapids route with the Canadian Ship Building Co. of Toronto and will probably place additional orders for other parts of its service. The officers of the company are: President, R. Forget, M. P.; vice president, Wm. Wainwright; general manager, C. J. Smith; secretary, F. Percy Smith; directors: George Caverhill, Wm. Hanson, Hon. L. J. Forget, C. O. Paradis, H. Markland Molson, Sir Henry Mill Pellatt, Lt. Col. F. C. Henshaw, Hon. E. N. Garneau, James Kerr Osborne.

FREIGHT SITUATION.

While the reports indicate that the ice is about as thick in St. Mary's river as it was this time a year ago, an early opening of navigation may nevertheless be looked for, as Lake Superior is fairly free from float ice. It was the unusual congestion of ice in Whitefish bay that delayed active navigation for two weeks last year, but no such condition obtains there now. Advantage will be taken of a favoring chance to open navigation. There is more coal afloat at the present moment than ever before, and as conditions permit it more boats will be shifted from port to port for coal cargoes. The Steel Corporation has loaded a number of its boats with coal for its own use, but has also offered to carry coal up for other shippers on the basis of a division of cargo. There is need of coal in the northwest and it will be got there as soon as possible. Everyone is preparing for an enormous movement of freight during the coming season but so capacious now is the physical equipment in railways, docks, ships and unloading machines that no perceptible strain will be felt in handling a considerably augmented movement over that of last year.

ENGINEERS' SCHEDULE OF WAGES.

There will be no change in the schedule of wages to be paid engineers on lake steamers during the coming season. The schedule is precisely the same as last year with the exception that the engineers want three men on the big package freight steamers. The card rate has customarily gone into effect on March 1, but this year the lake delegates have demanded that it go into effect on Feb. 15 when vessels are fitting out and making repairs. It appears that the Pittsburg Steamship Co. had men at work on their steamers at Cleveland, Milwaukee and Duluth but were paying them by the day, the chief engineer receiving $3.50 a day and the second engineer, $2.50. The company declined to put the card rate into effect on Feb. 15 and the engineers who were at work were called off by the officials. Everyone was quite amicable about it, no feeling whatever being displayed. The company put other men at work on repairs. The point raised does not affect many vessel owners as they will not begin fitting out until after March 1.

At a meeting of the directors of the Great Lakes Towing Co. this week, the regular quarterly dividend of 1¾ per cent on the preferred stock was declared. Officers were elected as follows: Chairman of board, George A. Garretson; vice chairman of the board, H. G. Dalton; president and treasurer, Edward Smith; first vice president, James Davidson; second vice president, A. B. Wolvin; third vice president, T. F. Newman; secretary and assistant treasurer, M. H. Wardwell; counsel, James H. Hoyt, Harvey D. Goulder; executive committee, G. A. Garretson, James Davidson, A. B. Wolvin, L. M. Bowers, C. E. Grover, H. G. Dalton, R. R. Rhodes, Edward Smith, D. Sullivan.

Generated on 2024-08-30 18:05 GMT / https://hdl.handle.net/2027/mdp.39015043584393
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

GROWTH OF THE IRON ORE TRADE.

From figures received directly from the mining companies, railroads and selling agents *The Iron Trade Review* has compiled its annual statistics of iron ore shipments mine by mine from the Lake Superior region in 1905. The total is 34,353,456 gross tons, compared with 21,822,839 tons in 1904, 24,289,878 tons in 1903, 27,571,121 tons in 1902, 20,593,537 tons in 1901 and 19,059,393 tons in 1900. The increase is 24 per cent over the record year of 1902. The shipments by water last year were 33,476,904 tons and by rail to upper lake furnaces and to South Chicago, Milwaukee and Colorado, 876,552 tons. The all-rail shipments were 596,175 tons in 1904, 640,328 tons in 1903, 531,952 tons in 1902 and 436,015 tons in 1901. The total of shipments from Lake Superior in 1905, as given below, does not include 169,527 tons shipped from the Helen mine in Ontario belonging to the Lake Superior Corporation. Of the Helen tonnage 104,266 tons was shipped to the United States.

Although the great importance of the Mesabi range is again shown by the figures for 1905, the old ranges do not lag far behind in their proportionate shipments. The Mesabi shipments were 20,153,699 tons against 12,156,008 tons in 1904 and 13,342,840 in the record year of 1902. The Mesabi percentage of the total shipments is this year 58.66 against 55.7 in 1904, 53 per cent in 1903 and 48 per cent in 1902. The Mesabi added seven new shipping mines in 1904 and nine last year, the most remarkable addition for 1905 being that of the Morris mine, which in its first year shipped 1,070,937 tons, a record unprecedented in mining history. The United States Steel Corporation drew on the Mesabi and Vermillion ranges last year for 71 per cent of its shipments against 69 per cent in 1904.

The Steel Corporation's shipments last year were 18,783,221 tons, or 54.6 per cent of the whole. In 1904 the Corporation's shipments were 11,197,743 tons, or 51.3 per cent of the whole. In 1903 it shipped 13,485,597 tons of 55.5 per cent of the whole, and in 1902, 16,136,787 tons or 58.5 per cent of the whole. As explained in past years in these columns, the Steel Corporation's shipments of Lake Superior ores are not an entirely accurate index of the amount shipped to its plants year by year. Some deductions are to be made on account of ore shipped to other consumers, and there are additions to be made of ore which the Steel Corporation receives from other producers.

The list of shipping mines in 1905 contains 143 names against 135 in 1904, 142 in 1903, 133 in 1902 and 104 in 1901. The distribution among the ranges is as follows: Marquette range, 21 against 20 in 1904; Menominee, 31 against 30 in 1904; Gogebic, 20 against 22 in 1904; Vermillion, 6, the same as in 1904; Mesabi, 65 against 55 in 1904. The Cleveland Cliffs group consists of Moro, Cliffs Shaft, Lake Salisbury, Ogden, Austin and Michigamme. The Hull, Burt and Rust mines on the Mesabi range, heretofore reported as the Lake Superior group, are given this year under their own names. On the Gogebic range the Norrie, East Norrie, Aurora and Pabst are reported as one, under the Norrie group.

In 1901 the Stevenson mine was preeminent on the producing column with a total of 1,652,021. In 1905, it steps into third place, Mountain Iron being at the head of the list with 2,495,089 tons to its credit, while the Burt comes second with 1,860,452 tons and the Stevenson third with 1,428,614 tons. In 1904 there were only two mines which mined more than 1,000,000 tons, while in 1905 there were seven which mined more than 1,000,000 tons each and one which mined more than 2,000,000 tons. Previous to 1905 the record for the largest production by a single mine in any year was held by the Fayal, which produced 1,919,172 tons in 1902.

The following is a table of shipments since the Sault Ste. Marie canal was first opened in 1855:

Year.	Total shipments.	Year.	Total shipments
1855	1,449	1880	1,908,745
1856	30,343	1881	2,307,005
1857	25,646	1882	2,905,412
1858	15,876	1883	2,352,840
1859	68,832	1884	2,518,693
1860	114,401	1885	2,460,642
1861	49,909	1886	3,565,144
1862	124,109	1887	4,762,107
1863	203,055	1888	5,063,877
1864	243,127	1889	7,202,643
1865	230,208	1890	9,003,725
1866	278,796	1891	7,071,053
1867	473,507	1892	9,072,241
1868	491,449	1893	6,065,716
1869	617,444	1894	7,748,312
1870	830,940	1895	10,429,037
1871	779,607	1896	9,934,828
1872	900,901	1897	12,464,574
1873	1,162,458	1898	14,024,073
1874	919,557	1899	18,251,804
1875	891,257	1900	19,059,393
1876	992,764	1901	20,593,537
1877	1,015,087	1902	27,571,121
1878	1,111,100	1903	24,289,878
1879	1,375,691	1904	21,822,839
		1905	34,353,456

The shipments by ranges and by mines in 1905 were as follows:

GOGEBIC RANGE.

Mine.	Gross tons. 1905.	Mine.	Gross Tons. 1905.	Mine.	Gr. ss Tons. 1905.
Anvil	82,118	Mikado	140,740	Sunday Lake	79,209
Ashland	409,131	Montreal	107,854	Tilden	188,104
Atlantic	208,039	Newport	438,023	Wisconsin (New Davis)	3,160
Brotherton.	137,351	Norrie Group	1,527,128	Yale	60,224
Cary	146,414	Ottawa	21,986		
Colby	83,736	Palms	13,953	Total	3,705,207
Harmony	2,973	Pike	11,161		
Hennepin	2,589				
Ironton	41,314				

VERMILLION RANGE.

Mine.	Gross tons. 1905.	Mine	Gr ss Tons 1905	Mine	Gross Tons. 1905
Chandler	365,739	Savoy	91,775	Soudan	205,002
Pioneer	653,682	Sibley	251,170	Zenith	109,818
				Total	1,677,186

MENOMINEE RANGE.

Mine.	Gross tons. 1905.	Mine.	Gross Tons. 1905.	Mine.	Gross Tons. 1905.
Antoine	138,395	Dunn	21,051	Munro	92,183
Appleton	1,819	Florence	233,858	Nanaimo	91,238
Aragon	423,698	Genesee	77,370	Paint River	11,973
Baltic	133,246	Great Western	191,265	Penn Iron Mining Co.	423,244
Breen	16,625	Hemlock	124,450	Pewabic	533,413
Bristol	210,388	Hiawatha	9,704	Riverton	82,611
Caspian	10,248	Lamont	74,991	Tobin	166,529
Chapin	902,628	Lincoln	19,539	Vivian	90,426
Columbia	27,883	Loretto	118,738	Youngs	10,926
Commonwealth	8,085	Mansfield	38,584		
Crystal Falls	152,255	Michigan	58,088	Total	4,495,451

MARQUETTE RANGE.

Mine.	Gross tons. 1905.	Mine.	Gross Tons. 1905.	Mine.	Gross Tons. 1905.
Beaufort	38,306	Foxdale	3,303	Mary Charlotte	221,738
Bessie	21,879	Hartford	322,209	Negaunee	239,554
Cambria	81,791	Imperial	1,661	Princeton	129,079
Champion	64,680	Jackson	33,130	Queen	253,377
Chester	23,766	Lake Angeline	374,183	Republic	150,699
Cleveland Cliffs Group	1,288,416	Lake Superior	727,378	Richmond	86,129
East New York	33,095	Lillie	9,868	Volunteer	106,281
				Total	4,210,522

Generated on 2024-08-30 17:58 GMT / https://hdl.handle.net/2027/mdp.39015043584393
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

MESABI RANGE.

Mine.	Gross tons. 1905.	Mine.	Gross. Tons. 1905.	Mine.	Gross Tons. 1905.
Adams	1,140,984	Glen	287,835	Morris	1,070,937
Agnew	44,651	Grant	49,227	Morrow	60,752
Ajax (Kanawha) .	28,439	Hawkins ..	202,070	Mountain Iron	2,495,089
Albany	241,186	Hector (Hale) ..	4,990	Myers	188,568
Alexander .	15,073	Higgins ...	238,598	Pettit	140,239
Bessemer ..	112,630	Holland ...	158,484	Pillsbury ..	161,924
Biwabik ..	1,092,987	Hull	233,065	Rust	272,114
Burt	1,860,452	Iroquois ...	61,109	Sellers ..	261,501
Cass	59,552	Jordan	185,854	Shenango .	213,097
Chisholm ..	231,296	Kinney	89,161	Sparta	27,777
Cincinnati .	965	La Belle...	78,597	Spruce	606,295
Clark	358,091	La Rue....	197,192	St. Clair...	61,792
Columbia ..	1,360	Laura	27,207	Stephens ..	367,764
Commodore.	146,901	Leetonia ..	352,004	Stevenson .	1,428,614
Croxton ...	130,228	Leonard ...	297,011	Tener	58,136
Cyprus	235,351	Lincoln ...	275,777	Troy	87,584
Duluth	142,172	Longyear .	16,778	Utica	185,944
Elba	125,724	Mahoning .	1,011,661	Virginia (Oliver).	402,224
Fayal	1,358,922	Malta	139,853	Webb	71,235
Forest	99,785	Miller	113,520	Wills	4,550
Frantz	70,210	Minorca ...	117,653	Yates	58,174
Genoa	281,081	Monroe ...	13,730		

Total ...20,153,699

With miscellaneous shipments from the Iron Ridge mine of 39,978 tons and 71,413 from the Illinois mine in Wisconsin, the grand total of the ranges and by po rts and all rail is 34,353,456 tons.

In the following table the shipments are given by ranges and by ports and all rail:

SHIPMENTS BY RANGES, GROSS TONS.

	1905	1904	1903
Marquette Range	4,210,522	2,843,703	3,040,245
Menominee Range	4,495,451	3,074,848	3,749,567
Gogebic Range	3,705,207	2,398,287	2,912,912
Vermillion Range	1,677,186	1,282,513	1,676,699
Mesabi Range	20,153,699	12,156,008	12,892,542
Miscellaneous	111,391	67,480	17,913
Total	34,353,456	21,822,839	24,289,878

SHIPMENTS BY PORTS AND ALL-RAIL, GROSS TONS.

	1905	1904	1903
Escanaba	5,307,938	3,644,267	4,277,561
Marquette	2,977,828	1,907,301	2,007,346
Ashland	3,485,344	2,288,400	2,823,119
Two Harbors	7,779,850	4,566,542	5,120,656
Gladstone	.....	553	85,816
Superior	5,118,385	4,169,990	3,978,579
Duluth	8,807,559	4,649,611	5,356,473
Total by lake.....	33,476,904	21,226,664	23,649,550
Total by rail.....	876,552	596,175	640,328
Total shipments	34,353,456	21,822,839	24,289,878

FAVORS A LOCK CANAL.

President Roosevelt has transmitted to congress the report of the Board of Consulting Engineers of the Panama Canal, together with a letter of Secretary Taft, the report of the Isthmian Canal Commission and a letter of Chief Engineer Stevens. President Roosevelt in his report says:

"Both the board of consulting engineers and the canal commission divide in their report. The majority of the board of consulting engineers, eight in number including the five foreign engineers, favor a sea level canal; and one member of the canal commission, Admiral Endicott, takes the same position. Five of the American members of the board of consulting engineers and five members of the Isthmian canal commission favor the lock canal and so does Chief Engineer Stevens. The secretary of war recommends a lock canal pursuant to the recommendation of the minority of the board of consulting engineers and of the majority of the canal commission. After careful study of the papers submitted and full and exhaustive consideration of the whole subject I concur in the recommendation. A careful study of the reports seems to establish a strong probability that the following are the facts: The sea level canal would be slightly less exposed to damage in the event of war; the running expenses, apart from the heavy cost of interest on the amount employed to build it, would be less; and for small ships the time of transit would probably be less. On the other hand the lock canal at a level of 80 ft. or thereabouts would not cost much more than half as much to build and could be built in about half the time, while there would be very much less risk connected with building it and for large ships the transit would be quicker; while, taking into account the interest on the amount saved in building the actual cost of maintenance would be less. After being built, it would be easier to enlarge the lock canal than the sea level canal. Moreover what has been actually demonstrated in making and operating the great lock canal at the Sault, a more important artery of traffic than the great sea level canal, the Suez, goes to support the opinion of the minority of the consulting board of engineers and of the majority of the isthmian canal commission as to the superior safety and feasibility and desirability of building a lock canal at Panama. The law on our statute books seems to contemplate a lock canal. In my judgment a lock canal as herein recommended is advisable. If the congress directs that a sea level canal be constructed its direction will of course be carried out. Otherwise the canal will be built on substantially the plan for a lock canal outlined in the accompanying papers, such changes being made of course as may be found actually necessary including possibly the change recommended by the secretary of war, as to the site of the dam on the Pacific side."

PERSONAL.

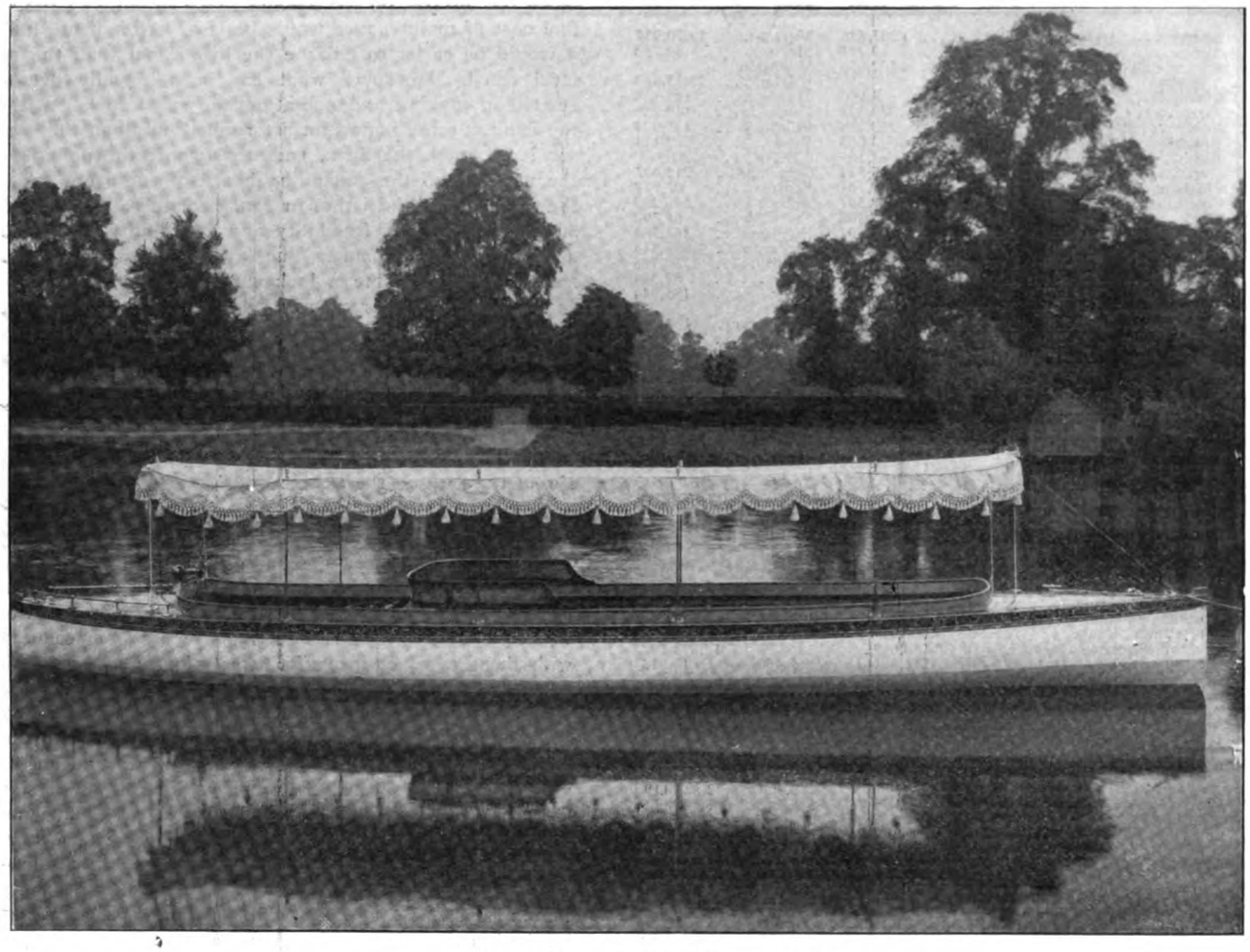
Capt. J. S. Watson, the superintendent of the Cunard Steamship Co. with headquarters at piers 51 and 52, North river, New York, is as delightful an old gentleman as one would meet in a year's wandering. He has been connected with the Cunard company for twenty-four years as marine superintendent. Previous to that he was at sea for forty-one years, having been in command of various vessels, both sail and steam on the Pacific and in China waters. In fact, he has served all over the world and for two and one-half years was in the United States navy. He has given sixty-five years of his life to actual service in sea work and though approaching his eightieth year, he is as active as most men of fifty, and seems destined to serve the Cunard Steamship Co. for many years to come. The MARINE REVIEW regrets that it is unable to publish a photograph of Capt. Watson, but he has not had one taken for several years.

Frederick S. Stratton, collector of customs of the port of San Francisco, has just been notified by the secretary of the treasury that the laws regarding the size and ventilation of the passenger apartments on all ocean going steamers, will be enforced with the utmost rigidity. He has been instructed that, if he discovers the slightest violations of these laws, he is to report it to the United States district attorney, and to the authorities at Washington. The law provides that in steamers there must be 100 cubic feet of air space for each passenger, and that the ventilation must be adequate. There must not be more than three tiers of berths in each stateroom. It is claimed on good authority that in the quarters occupied by Chinese on some of the steamships, there are six tiers in many of the rooms.

The Standard Oil Co. has gone into the vessel constructing business on the Pacific coast. A large steel barge has just been launched at Point Richmond, and towed over to San Francisco. This is the first vesel to be built and launched at the company's ship yard. The new vessel was christened Benecia. Her capacity will be 90,000 gallons of oil. The Benecia will have twin-screws and gasoline engines.

The departure from the works of the Fore River Ship Building Co., Quincy, Mass., of the battleship Rhode Island for the Boston Navy Yard where she is to be put into commission for service, will be followed within the next six weeks by the battleship New Jersey to be made ready at the Boston Navy Yard for her official speed trial.

Generated on 2024-08-30 17:55 GMT / https://hdl.handle.net/2027/mdp.39015043584393
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN



GASOLINE LAUNCH BUILT FOR KING EDWARD VII.

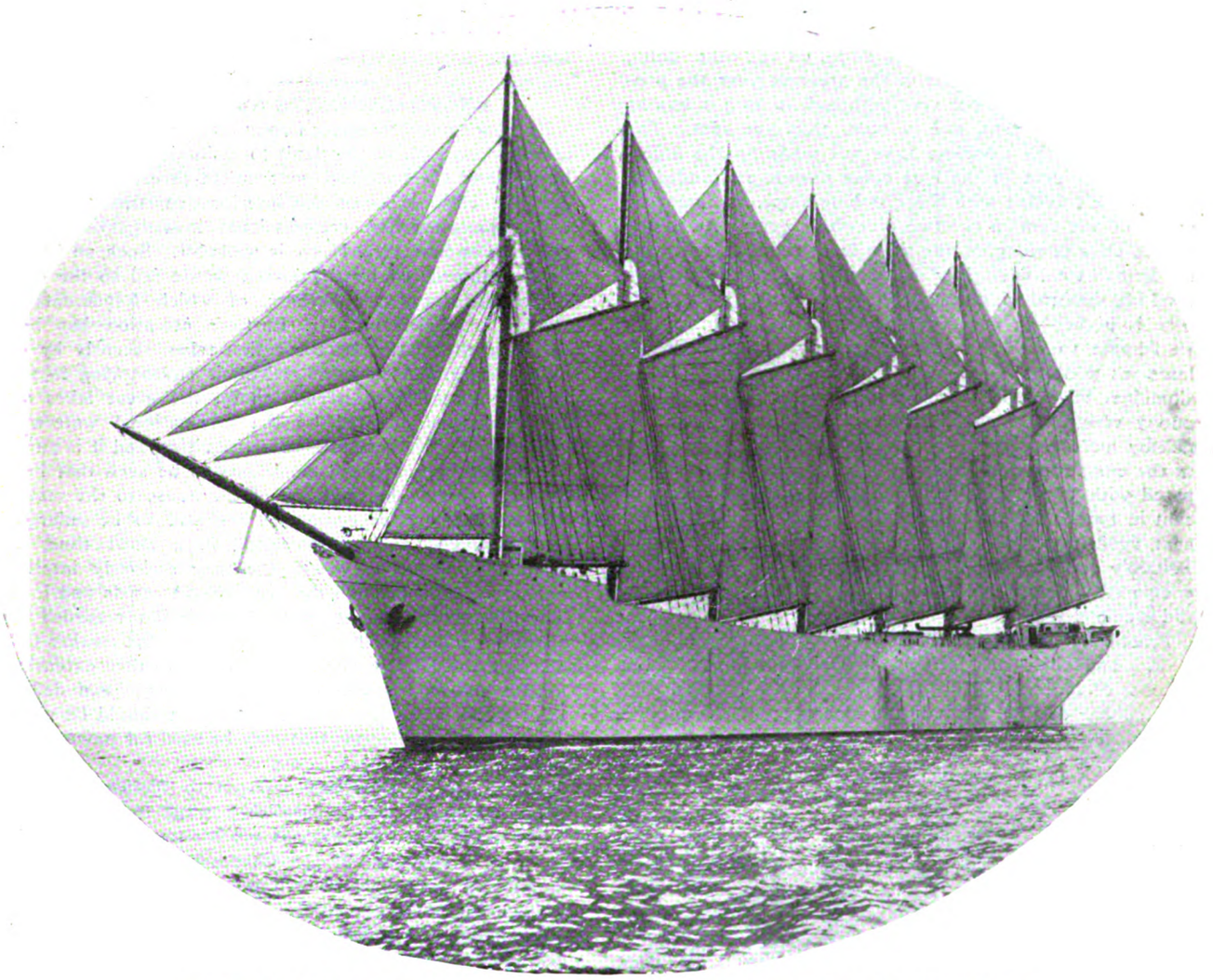
PASSENGERS ON ATLANTIC LINERS.

The return of passengers landed at New York by Atlantic liners during the past year, which has reached us this week, establishes several important records. In the first place, the total numbers of both cabin and steerage passengers are the largest in any year, and the average number per liner is greater than in any previous period. In this latter respect there has been a very steady development. Ten years ago the average number per ship was between 400 and 500, but now we are approaching 1,000, the figure for 1905 being 961. This compares with 760 in the preceding year; 830 in 1903; 773 in 1902, and 639 in 1901.

When we analyze the returns from separate lines, we note in several cases a still more decided movement forward. Up to the beginning of the century no company could claim the credit of taking 1,000 passengers in each of their steamers. In 1901, however, the North German Lloyd stepped into this position with an average of 1,130. In 1902 they were joined by the Hamburg-American Line, and in 1903 there were seven lines with an average in excess of 1,000. In 1904, however, there were only three. For the past year we have nine lines, the Cunard Company topping the list with their Fiume service, having an average of 1,730 passengers. This is the largest recorded for any line, the highest, in 1904, being the 1,256 of the Hamburg-American Company; while in 1903 the maximum per ship was the 1,367 recorded by the North German Lloyd. The other lines with high averages for 1905 include the North German Lloyd Mediterranean service, with 1,511; the White Star Line Mediterranean service with 1,479; the Hamburg-American service from Hamburg, with 1,396; the North German Lloyd Bremen service, with 1,387; the Red Star Antwerp service, with 1,336; the Navigazione Generale Italiana Mediterranean service, with 1,195; La Veloce Line, from the Mediterranean, with 1,146, and the Holland-American service, from Rotterdam, with 1,108.

Many of these high averages are due largely to emigrant or steerage traffic, but there is still a very satisfactory development in cabin traffic. This year the first place is taken by the North German Lloyd, with 393 passengers in the first and second cabins. This compares with the highest total in the previous year of 352 by the same company, while in 1903 the highest was 362. The Cunard Company came second in this respect with a total of 307, as compared with 287 and 294 in the two preceding years. Then follow the White Star with 285, the American with 246, the Hamburg-American with the same number, and the Anchor Line, from Glasgow, with 244. Twelve lines took more than 100 cabin passengers, as compared with ten in the two preceding years, so that in this respect also the increase in the size and accommodation in ships is having its effect. We give in Table I. a note of the average number of passengers per ship of the principal lines, arranged according to the number of first-class passengers

Generated on 2024-08-30 17:58 GMT / https://hdl.handle.net/2027/mdp.39015043584393
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN



THE SEVEN-MASTED SCHOONER THOMAS W. LAWSON, ONE OF THE WORLD'S FAMOUS SAILING SHIPS.

taken, and indicating clearly the advance in the average per ship.

AVERAGE NUMBER OF PASSENGERS PER SHIP OF PRINCIPAL LINES.

TABLE I.

Line.	First cabin.	Second cabin.	Steerage.	Total.	Total in 1904.	Total in 1903.
White Star	156	129	528	813	869	748
North German Lloyd.	147	246	994	1,387	1,201	1,387
Cunard	131	176	611	918	906	802
American	112	134	542	788	775	605
Hamburg-American	107	139	1,150	1,396	1,256	1,135
North German Lloyd (Med.)	80	136	1,295	1,511	893	1,114
Atlantic Transport	76	....	....	76	74	68
White Star (Med.)	74	149	1,256	1,479	278	....
Red Star	72	143	1,121	1,336	971	1,249
French	70	95	777	942	854	1,063
Holland	69	142	897	1,108	785	1,005
Anchor	56	188	376	620	532	483
Hamburg-American (Med.)	44	39	735	818	548	827
Scandinavian	37	76	549	662	604	468
Spanish	36	51	575	662	417	505
Veloce	26	....	1,120	1,146	849	1,230
Cunard (Med.)	24	59	1,647	1,730	1,225	315
Allan-State	18	77	84	179	141	128
Empreza	18	....	319	337	139	....
Navigazione	13	33	1,049	1,195	717	900

Turning now to a consideration of the totals, we give in Table II. the aggregates for several years. It will be noted that the number of cabin passengers is greater than in any previous period, being about 14 per cent above the highest previous total—that recorded in 1904, and considerably more than double the lowest total—that of 1898. It is, however, in the steerage traffic that the greatest increase is recorded. Two hundred thousand more passengers traveled by the Atlantic liners to New York, apart altogether from the number arriving at Baltimore and other ports, as compared with the previous year; while, as compared with 1903, when the total reached a very high level, owing to the rush of emigrants before the legislation against immigration became so stringent, the total shows an increase of 133,000. Last year's aggregate is enormously greater than during the 'nineties. The total of 961,262 passengers landed at New York is 31 per cent greater than in the previous year, about 20 per cent above the highest total previously recorded—that of 1903—and three times the number of several years in the 'nineties.

RECORD OF ATLANTIC PASSENGER SERVICE TO NEW YORK.

TABLE II.

Year.	Number of passages.	Cabin.	Steerage.	Total.
1890	....	144,178	371,593	515,771
1891	....	150,023	445,290	595,313
1892	....	120,991	388,436	509,477
1893	975	121,829	364,700	486,529
1894	879	92,561	188,164	280,725
1895	792	96,558	258,560	355,118
1896	852	99,223	252,350	351,573
1897	901	90,932	192,004	282,936
1898	812	80,586	219,651	300,237
1899	826	107,415	303,762	411,177
1900	838	137,852	403,491	541,343
1901	887	128,143	438,868	567,011
1902	922	139,848	574,276	714,124
1903	969	161,438	643,358	804,796
1904	967	162,389	572,798	735,187
1905	1,006	184,932	776,330	961,262

Practically all of the steamship lines have participated in the increased traffic, although the German lines have not advanced in quite the same proportion as the British owned ships. Of the total of first-cabin passengers, one-

Generated on 2024-08-30 17:56 GMT / https://hdl.handle.net/2027/mdp.39015043584393
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

third, or, to be exact, 33.6 per cent, traveled in German ships, as compared with 36.8 per cent in 1904 and 37.3 per cent in 1903. British-owned ships, on the other hand, took 38.6 per cent, whereas in the previous year the proportion was only 31.9 per cent, although in 1903 it was as high as 37.1 per cent, and in 1902, 37.25 per cent. The other lines in the Combine have not made up the difference; 69 per cent of the first cabin passengers landed at New York traveled with the Combine ships, as compared with 71.6 per cent in the two preceding years. As to the second-class passengers, the same legal trend is indicated; the British total is slightly improved, whereas the German total has diminished, although the proportion by the Combine is higher—63 per cent against 62 per cent in 1904. In respect to steerage passengers, however, the British lines, as well as German and other companies of the Combine, have failed to hold their own. Most of the purely emigrant ships from the Mediterranean have decidedly increased their proportion. As it is, 32.4 per cent of the emigrants were taken by the German lines, as compared with 34 per cent in the previous year, and 36.2 per cent in 1904, while the ships of the Combine took 51.9 per cent, against 57.7 per cent and 54.5 in the previous years. Britain's quota of the steerage traffic is 23.3 per cent, as compared with 26.5 per cent in 1904, and 18.5 per cent in the previous year.

Practically all the important lines have increased their traffic, and that, too, without materially adding to the number of sailings. Table III. gives the list of lines, with the number of first, second, and steerage passengers carried by each in 1905 and 1904. It will be seen that the North German Lloyd again tops the list, having taken 177,871 passengers—equal to 18.5 per cent of the total number of passengers landed at New York. The great majority of these were steerage voyagers; but the company have taken more first and second-class passengers than any of the other lines. In all 125 trips were made. The total is considerably higher than in previous years. In 1904 it was 135,547, and in 1903, 155,110. The other German line—the Hamburg-American—occupies again the second place, the total number of passengers being 139,972, of whom 116,863 were conveyed in the steerage. The total is greater than in the two preceding years, when the aggregates were 120,323 and 138,432 respectively. The number of Hamburg-American trips was eighty-seven from Hamburg and twenty-one from the Mediterranean ports. The third place is taken by the Cunard Company, and here the total is 98,419. This includes the very extensive traffic undertaken by the company from Fiume. The Cunard total is about 16,000 greater than in the previous year, a marked increase having taken place in the number of first-class passengers conveyed. The White Star Line is fourth on the list, with an aggregate of 91,435, or 9,000 more than in the previous year, the totals, of course, including the passengers by the Mediterranean service. The results of the other lines are set out in the table.—*Engineering*, London.

RETURN OF PASSENGERS LANDED AT NEW YORK BY PRINCIPAL LINES.

TABLE III.

	1905			1904		
Line.	First.	Second.	Steerage.	First.	Second	Steerage.
North German Lloyd..	15,974	26,843	135,054	15,414	21,684	98,449
Hamburg-American....	10,208	12,901	116,863	9,830	14,353	96,140
Cunard	8,704	12,328	77,387	6,575	13,249	63,027
White Star.....	14,618	13,328	63,489	13,130	10,942	58,260
Red Star	3,816	7,560	59,431	2,933	6,505	39,148
French	5,056	6,812	55,918	4,556	6,905	34,684
Holland-America.....	3,267	6,658	42,134	3,027	5,140	25,633
Anchor.....	2,816	8,666	38,433	1,833	6,065	28,047
Navigazione.....	455	1,139	35,068	421	909	17,320
Veloce	768	....	32,478	673	....	18,885
Fabre	181	....	30,694	111	....	17,257
American	7,623	6,733	27,106	4,206	4,729	28,316
Atlantic Transport.....	3,550	13	28	3,654	....	90
Austro American	154	197	17,125	62	54	4,338
Prince	91	1	14,902	84	2	8,081
Scandinavian.....	923	1,904	13,728	665	1,549	19,509
Spanish.....	432	614	6,898	370	245	4,383
Allan-State....	319	1,390	1,520	304	1,301	2,362
Empreza.....	55	....	958	18	....	409

ENCROACHMENTS AT THE SAULT.

Encroachments by water power companies on the supply of water available at the Sault to maintain canals operated by this and the Canadian government threaten to develop an open clash between the interior department and the war department. A congressional investigation of the situation at Sault Ste. Marie is probable. Such an investigation, if ordered by the house, would fall to the committee on rivers and harbors, of which Representative Burton is chairman. Mr. Burton's attention has been called to the matter by the action taken recently by the Lake Carriers' Association, which is endeavoring to protect the interests of navigation on the great lakes and by resolutions adopted by the international waterways commission. He has made some inquiries, and it is understood that he has found conditions to be such that he is disposed to call the attention of the house to the matter.

The water power companies are said to be enlarging and extending their plans until, in a short time, the amount of water they will use may seriously interfere with navigation through the government canals and locks. The International Waterways Commission regarded the situation so serious that it recommended that neither Canada nor the United States permit any further extensions until a thorough investigation can be made and definite information secured as to the limits that should be placed on the amount of water that may be used for power-creating purposes.

The Lake Carriers are opposed to further encroachments at the Sault because they want new locks constructed there and there is not any too much land available for such a purpose. If the Chandler-Dunbar Power Co. is allowed to remain, it will practically cut the owners of lake freighters off from any new locks. The necessity for new canals, according to the Lake Carriers, has become a crying one since the advent of the 600-foot boats with sixty feet beam.

While the entire executive committee of the Lake Carriers' Association can be relied on to fight the extension of water power rights to the last ditch, such men as J. C. Gilchrist, Harry Coulby and William Livingstone, as well as Harvey D. Goulder, all of whom are members of the committee, are expected to lend their influence in preventing further encroachments.

That the war department realizes the justice of the demands of the boat owners is shown by the fact that the United States engineer at Detroit has made plans for a lock he proposes building on almost the same spot where the Weitzel lock now stands. There has been a difference of opinion, however, as to just where another canal should be constructed.

The clash between the interior and war departments, which is not the least interesting feature of the situation, has nothing to do with the amount of water that is being used by the power companies. The interior department has suits now pending in the United States court of appeals to oust the Chandler-Dunbar Power Co. from the possession of certain lands along the rapids at the Sault, upon the possession of which the power company bases its claim to use the American side of the rapids for power creating purposes.

The war department, while this action has been pending, has been granting the power company permits to use the rapids and to make extensions in its plant. The interior department contends that this action by the war department has strengthened the position of the power

Generated on 2024-08-30 18:00 GMT / https://hdl.handle.net/2027/mdp.39015043584393
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

company, and that every permit issued by the war department has increased the vested rights of the company and has weakened the contention of the government that the company has unlawfully taken possession of government lands.

SHIPPING BILL ENDORSED.

By a unanimous vote the Cleveland Chamber of Commerce placed itself on record this week as favoring governmental aid to shipping in the foreign trade, adopting the following resolutions presented by Mr. Harvey D. Goulder, president of the Merchant Marine League of the United States:

"Resolved, that due consideration for the broad development of our foreign commerce and for the better safety of the nation demands the restoration of a foreign merchant marine under our flag.

"Resolved that the same purpose is being striven for and accomplished steadily by other nations in their own behalf.

"Resolved, that we regard the work of the congressional marine commission as having been done with industry, fairness and discrimination, and therefore

"Resolved, we recommend the prompt enactment and careful trial of the plan evolved by the commission and embodied in the Gallinger bill, so-called, which has recently passed the senate, and

"Resolved, that copies of these resolutions be forwarded to the senators and representatives of Ohio in congress."

Before the resolutions were adopted, earnest speeches were made by Mr. F. F. Prentiss, president of the Cleveland Twist Drill Co.; Col. J. J. Sullivan, president of the Central National Bank, and Mr. Harry Coulby, president and general manager of the Pittsburg Steamship Co., the lake end of the United States Steel Corporation.

Mr. Prentiss spoke as a manufacturer, representing how extremely important it was to have continuous access to the foreign field and how impossible it was to reach certain important fields, notably South America. He related that in a recent tour around the world he had met a number of American manufacturers who were abroad to extend their business, and all of them were a unit in declaring that the one thing needful was the American ship. He added that he had gone around the world and had seen the American flag in only two places, one on a warship at Shanghai and the other on a three-masted schooner at Honolulu.

Col. J. J. Sullivan argued that the resolutions were not strong enough, saying that the American Bankers' Association, representing 7,000 members, had endorsed governmental legislation in favor of shipping without a dissenting voice at its recent convention in Washington.

The most important speech of all, however, was made by Mr. Harry Coulby. He considered it a happy circumstance that the movement for the support of American shipping through governmental aid should originate in Cleveland and regarded it as especially important that it should have the endorsement of the Chamber. His argument was that no city in the country had profited so greatly through governmental aid to shipping as Cleveland. By this he meant the great impetus which had been given to the city's growth through the deepening of lake channels by the general government. He said that when he first came to Cleveland it cost $1.50 to bring a ton of ore from the head of the lakes to Cleveland. The present rate is 75 cents a ton. He did not think it necessary to say that transportation was the life nerve of trade; nor did he think it necessary to argue that it was not the ship owner alone that had profited by the deepening of the channels and by the cheapening of transportation. The farmer who bought a piece of wire for his farm or the woman who bought a needle for her sewing had profited in like proportion. He did not think the shipping bill was liberal enough, but such as it is, it should be given a trial.

As to the adoption of the resolutions, Mr. Prentiss moved that owing to the importance of the subject as a national measure a special committee should be appointed to present the resolutions in person to congress. This motion was unanimously carried and the following have been appointed to go to Washington: H. D. Goulder, president Merchant Marine League of the United States; F. F. Prentiss, president of the Cleveland Twist Drill Co.; H. Coulby, president of the Pittsburg Steamship Co.; Col. J. J. Sullivan, president of the Central National Bank and Superior Savings & Trust Co. and former president of the National Board of Trade; James H. Hoyt, of Hoyt, Dustin & Kelley; Caeser Grasselli, president of the Grasselli Chemical Co., and D. Z. Norton, of Oglebay, Norton & Co.

WEATHER CONDITIONS AT THE SAULT.

Editor MARINE REVIEW:—It might be well for those figuring on a most extraordinarily early opening of navigation this year to wait a while before making their plans or setting the date for the opening. For your information I will say there has been a lot of ice made in Mud Lake during the past two weeks and conditions here are not much different than they were at this date last year. For the first two weeks in February the thermometer has only registered one and a half degrees higher than the same period last year. The ice is about 17 in. thick here as against 19 last year. The thermometer has been down to 27½ below zero in the past two weeks and has been 13 below the past two days, with continued cold weather. You can readily see if this continues the conditions will be practically the same as last year with the exception that there is not so much snow on the ice. There is, however, plenty of time yet for heavy snow falls. My personal opinion is that we are going to have an earlier opening than usual, but not near so early as most people are figuring on. T. R. HARVEY.

IMPROVEMENTS AT LORAIN YARD.

The American Ship Building Co. will make the Lorain plant the finest and most complete of its chain of plants, contemplating the expenditure of $1,500,000. Contracts were closed this week for the construction of a punch shed which will be 220 ft. long and 220 ft. wide with a stockyard of the same dimensions. The buildings will be of steel. Contracts for her power house and pumping station have also been closed. Six over-head traveling cranes have been purchased for the punch shed and two overhead gantry cranes for the building berth. When the plant is completed the company will have capacity for two ships 700 ft. long and 65 ft. beam in addition to the present capacity of the yard. The three 605-ft. vessels ordered by the Weston Transit Co. will be built there.

The Peavey elevator at Duluth was burned last week entailing a practical loss of $1,000,000. The elevator contained at the time of the fire about 1,000,000 bushels of grain, principally wheat. The elevator was owned by the Peavey-Duluth Terminal Elevator Co. It was virtually destroyed before the fire department had any chance to throw water upon the flames, as it was necessary to cut through six feet of ice to get water at all.

The steamer John Sherwin building at the West Bay City yard of the American Ship Building Co. for the Gilchrist Transportation Co. of Cleveland will be launched March 10.

Generated on 2024-08-30 17:56 GMT / https://hdl.handle.net/2027/mdp.39015043584393
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

MERCHANT MARINE LEAGUE.

(Note.—Following is the first of a series of semi-weekly statements issued by the Merchant Marine League of the United States to the newspapers of the country in the hope of arousing more extended discussion of the condition and needs of American shipping in the foreign trade, especially with reference to the bill now pending in congress for the upbuilding of our deep-sea shipping.)

SHIPPING BILL PASSED THE SENATE.

The shipping bill has been passed by the United States senate by a vote of 38 for to 27 against. It is now before the house of representatives, and in the hands of the committee on merchant marine and fisheries of that body, from which it should be, and probably will be, promptly reported favorably. At least one democrat is known to favor the bill in that committee, and every republican is expected to support it. It should be upon the statutes of the United States, as it easily could be, before April 1. As soon as the committee reports it to the house, the speaker will be requested to agree with the committee on rules in designating a day for its consideration. If it can be brought to a vote it should be passed by an overwhelming majority in its favor.

SOME PERTINENT FACTS.

This bill is the culmination of nearly a half a century of continuous agitation for legislation for the upbuilding of our deep-sea shipping. In our earlier years we had a great merchant marine, which grew up rapidly, as soon as congress passed protective laws. As these laws were gradually withdrawn our proportion of our foreign carrying fell from 92 per cent in 1826, to 65 per cent in 1861, although in the latter year we had the largest tonnage in the foreign trade in the history of the country. Today it is but one-third of what it then was, and it is now even less than it was in 1810. Our ships upon the sea have been in free trade competition with foreign ships for forty-five years, and they have been unable to meet that competition, especially when it is known that upwards of $27,000,000 annually is paid to foreign shipping by foreign governments, in the way of subsidies, bounties, subventions, and other aids.

SOLE SOURCE OF OPPOSITION.

Unfortunately this question has become more or less of a partisan one largely because the democrats, until now, have refused to favor any protective measure for the upbuilding of our deep-sea shipping. Previously they advocated the free admission of foreign-built American-owned ships to American registry, a privilege denied under our laws since 1792. The adoption of this policy, if it proved successful, would mean our entire reliance upon foreign ship yards, alien workmen, in alien lands, for the construction of our merchant shipping. It has never received the approval of any considerable body of our people, and has now been abandoned by the democrats. They are far from being united as to policy, but latterly some of them advocate a return to the old policy of discriminating duties, to do which it would be necessary to abrogate over thirty treaties with as many different governments.

A GENERATION OF PERSISTENT AGITATION.

Every president, since the days of Abraham Lincoln, has pointed to the decline of our deep-sea shipping, and called upon congress for remedial legislation, and congress ever since that time has struggled with the question. Many commissions and committees have studied it, and in all cases the remedy proposed has been a protective one, invariably subsidies and bounties.

PRESIDENT ROOSEVELT'S VIGOROUS ACTION.

President Roosevelt grasped the situation, and met it characteristically. He stated in his message to congress of two years ago that the people were united in desiring a merchant marine, but divided as to policy. Therefore he recommended the appointment of a commission to study and investigate the subject, in the hope that a remedy upon which all could unite would be found. Such a commission was appointed, and it spent a year, holding public hearings in the chief Atlantic, Pacific, Lake and Gulf ports of the country, getting the best views of those interested, everywhere, and finally making a report, and a bill to carry its recommendations into effect, which it presented to congress a year ago, but which could not be considered at that time. The commission was therefore continued until the opening of the new congress, in December last, when it presented an additional report, but the same bill as it had previously presented, with some slight amendments. This is the bill as amended, that has just passed the senate by the vote of 38 to 27.

LEADING FEATURES OF BILL.

The bill provides for the creation of a reserve force of naval retainers, picked from the merchant marine service, and to whom, for services to be rendered as prescribed by the secretary of the navy, and for being subject to the government's call at will, they are to receive annual retainers according to their rank, precisely as is the custom in Great Britain, Germany, France and in other countries. It also provides for the establishment of steamship lines, to which there shall be paid sums varying according to the speed and frequency of the sailings of the ships, a follows: Three lines from Atlantic ports, one to South Africa, one to the River Platte and one to Brazil; four lines from Gulf ports, one to Cuba, one to Mexico, one to Colon and one to Brazil; four lines from Pacific ports, two to the Orient, one to Hawaii, the Samoan Islands and Australasia, and one down the west coast of this hemisphere. To cargo vessels a fixed sum of $5 per gross ton per annum is provided, if these vessels remain in the foreign trade for a year, with a lesser sum for a lesser period, but nothing is paid for a less period than six months in the foreign trade. This sum, as in the payments to the proposed mail lines, is barely enough to enable American owners to meet the extra expense of building ships in the United States and running them under our flag, in competition with the heavily subsidized ships of other countries.

OBJECTION AND ALTERNATIVE POLICY PROPOSED.

The chief objection offered by the democrats was to the provision for cargo vessels, and yet that class of vessels was what was overwhelmingly demanded by the people who appeared before the commission. The only alternative plan offered by the democrats is a return to the policy of discriminating tonnage and import duties, the cost of which would be very much higher, and far less satisfactory, to the people than the bill proposed by a majority of the commission. For instance, the provisions of the pending bill would take an average of $4,000,000 annually from the national treasury, while the alternative discriminating duties and tonnage dues policy recommended by Senator Mallory would, in its full effect, take about $35,000,000 annually.

TO HASTEN LEGISLATION.

The merchant marine league of the United States, which is urging the earliest possible enactment of legislation that will give us an American merchant marine, has its headquarters and its chief officers in Cleveland, Ohio, where it was organized a little more than a year ago. Neither its organizers, nor its chief officers, are in any way interested in shipping upon the seas, nor would they be benefited, except nationally like any other citizen, by the passage of the bill. The organization is a patriotic, non-partisan, non-political one, having singly in view the promotion of our deep-sea shipping.

BEST BILL YET DEVISED.

It is the purpose of the league to supply the press of the country with information regarding the condition and needs of our deep-sea shipping, and particularly the bill now pend-

Generated on 2024-08-30 17:58 GMT / https://hdl.handle.net/2027/mdp.39015043584393
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

ing in congress, the obstacles to its passage, and to suggest means for its early enactment, as being the best bill now before the country for the upbuilding of our ocean-going shipping. The bill may not be ideal, in every respect, and this is a result largely due to the necessarily compromise features of nearly all legislation. It is the best measure that could be devised by a body of ten practical, experienced, national legislators, having before them the best judgment of practically everybody in the United States who is interested in building up our deep-sea shipping.

THE LEAGUE WILL ISSUE ADDITIONAL BULLETINS.

For a vast number of reasons that we will, in subsequent documents, recite, we should have a great and prosperous shipping of our own. This document is merely introductory to other documents that it is our purpose to issue from time to time, which we shall be delighted to have copiously copied by the press of the country, and to which we invite criticism and comment.

WILLIAM CROSTHWAITE.

Buffalo, Feb. 21.—The death on the 14th of William Crosthwaite, which occurred at Los Angeles, Cal., in his 85th year, severs another of the personal links in the chain that binds the old ship building to the new. Mr. Crosthwaite was born only eight years after the victory of Commodore Perry drove the British fleet off Lake Erie, when a sloop of 100 tons was a war ship. Though steam as a propeller of vessels was known before he was born he was a man grown before it was successfully used for crossing the ocean and probably had his ship carpenter's trade learned.

For he was a life-long ship builder, much of the time in his own name, sometimes in Buffalo, but oftener in Bay City or East Saginaw, and I find that the Lloyds Register of 1896 still gives the names of nine vessels, three of them steam, that he built on Saginaw Bay. It must have been almost fortunate that ill health drove him from active business quite a number of years ago, for the ship yard of today must be a sort of bewilderment to the man who was at his best when the sound of the shipbuilder's adz and calking mallet were the best-tuned musical instruments that he knew and the sail loft was full of busy workers.

Now it is the rolling mill and the blacksmith shop that begin the monster that is to be as long as half a dozen of the earlier craft and the riveter's racket, intensified and put at top speed by steam or electric power, seals together the parts that would sink like pieces of lead if left for a moment without special displacement. It may be that the ship carpenter of old was of as varied nationality as is the ship yard worker now, but he was able to speak with pride of the part he took in hewing out the sides or calking the decks of this or that well-known craft and of how many yards he had worked in, so that he had only to announce himself to command a job anywhere that ships were put together.

There have been other changes since that day when the wooden vessel began to go out, besides those made necessary by the metal hulls. The work that requires great skill is largely done before the pieces of steel are put together and the man who does the rest is a laborer rather than a skilled craftsman. There have been labor troubles in the Buffalo ship yard so often in late years that within a year all the old outside men were shut out and gangs of green Italians have been put on. The other day I asked the yard how the work was going on and was told that it was never better. Everything was satisfactory, and this with perhaps not a man in the gangs knowing a year ago any more of the make-up of a vessel than he was able to observe when he came across in one to see what America had in store for him.

It is well that it is so. We all find certain radical changes hard to endure from a sentimental standpoint and there is still living a man here and there who believes the railroad and its many kindred innovations have done the world any amount of harm, but there are now dollars in the people's pockets where there used to be dimes, and they would never have got there but for the ability to make things more cheaply than formerly and to make things that are many times more valuable that used to be possible.

It is not likely that the lake steamer has taken form yet such as is to remain, but it is not far away. Some of us who may have lived through the age of sloop, schooner, square rigger, river tug, big "towing machine," steam barge, line propeller, iron hull, to the long steel ten-thousand tonner of today, are satisfied that we are far and away ahead of the days of William Crosthwaite's steamer Queen of the West, in her prime worthy her name, but later on giving occasion by her loosened joints for Capt. Peter Wex to remark that he met her down along Thunder Bay wriggling along at a sort of "four motion" gait that he could easily make out at night.

The new steel lake steamer is not as strong as she should be, but she is not going to drop down a peg in classification in ten years after she comes off the ways and she is going to be here right along for good men to experiment on, and there is plenty of chance of bettering her as soon as the energies and ingenuities of inventors are no longer expended in bringing out any more new styles. The problem is to find something that can be made into stiffening and take the place of the extra depth that so holds the ocean craft together. Of course it will be done in good time and then the big wave will not toy with her any more. As yet there is not much development of plans in that direction, but such a plain need will not be long neglected.

JOHN CHAMBERLIN.

OBITUARY.

Capt. Henry Reaney, for the last thirty-five years chief clerk in the United States light-house inspector's office at Detroit, died at Grace Hospital in that city this week. He did not survive the stroke of paralysis received on Sunday evening last. Capt. Reaney was born in Dublin and was brought to this country while a child. At the outbreak of the civil war he enlisted in the United States navy and attained the rank of first lieutenant, having command of a number of small vessels. At the conclusion of the war he joined the Haitien navy. In 1870 he went to Detroit and was immediately appointed to the position which he held until his death. Capt. Reaney is survived by a widow, four daughters and one son. The son, Father Wm. H. I. Reaney, is chaplain in the United States navy and is at present stationed at the Brooklyn navy yard.

Dan McMillan, a well known lake engineer, died at Muskegon this week. He was a partner in the firm of Wilson & McMillan Bros., owners of the steamers John Otis, Mathew Wilson and S. M. Stephenson.

The ore docks of the Baltimore & Ohio Railway at Lorain will be greatly improved by the opening of navigation. The Westinghouse Machine Co., Pittsburg, is now installing on the docks a 1,000 H. P. turbine engine for lighting purposes. Heretofore the light for the dock has been purchased. The recent decision to add clam-shells and scrapers to the Brown Hoist equipment is in a measure responsible for this change, as electric current will be needed to operate the scrapers.

Generated on 2024-08-30 17:58 GMT / https://hdl.handle.net/2027/mdp.39015043584393
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

AROUND THE GREAT LAKES.

The Yale Transit Co., of which Mr. Robert R. Rhodes, of Cleveland is president, has sold the steel steamer Yale to John J. Boland, of Buffalo.

A revised chart in colors of Lake Superior (No. 3) has just been issued by the United States Lake Survey Office and is for sale by the MARINE REVIEW.

A revised chart in colors of St. Mary's river (No. 1) has just been issued by the United States lake survey office and is for sale by the MARINE REVIEW.

The tug Salvor belonging to the Reid Wrecking Co. sank in 20 ft. of water at the Pere Marquette dock, Ottawa Beach, on Saturday night last. The cause is unknown.

The Martin Dredging & Wrecking Co. has purchased the tug Kate Williams, of Manitowoc. The company will station her at Escanaba.

Mr. Frank D. Selee who has sailed the lakes for the past seventeen years, has just invented a life boat davit, a model of which has been submitted to the board of supervising inspectors now at Washington.

The Collingwood Ship Building Co., Collingwood, Ont., are to build a freighter for the Midland Navigation Co., for fall delivery. The new steamer will be 486 ft. over all, 466 ft. keel, 55 ft. beam and 31 ft. deep.

The steamer Abraham Stearn building for W. A. & H. A. Hawgood of Cleveland at the West Superior yard of the American Ship Building Co. will be launched on Wednesday next.

The directors of the Cleveland Cliffs Iron Co. have decided to name one of their three steamers now building at the Ecorse yard of the Great Lakes Engineering Works in honor of Mr. J. H. Sheadle, the secretary of the company.

Arrangements have been completed for the annual wage conference between the Great Lakes Tug & Dredge Owners' Protective Association and the various branches of dredge workmen. The sessions will open in Chicago next Monday.

The Pere Marquette Railway Co. has abandoned car ferry service across the St. Clair river for the present. The car ferry International was unable to run through the ice blockade without incurring excessive expenses and the service was discontinued.

The steamer Maywood owned by the Escanaba & Gladstone Transportation Co. will be altered in some particulars before going into commission in spring. The pilothouse will be lowered and a captain's bridge constructed on its top. This will entail some rearrangement of the parlor and smoking room.

The wooden steamer Saginaw, partially burned near Port Huron late last November, has been sold by her owner C. W. Kotcher, of Detroit, to E. W. Miner, president of the Detroit Coal & Coke Co. The steamer will be operated in the river trade and will tow the barge Wm. Case, also owned by the coal company.

The executive committee of the Lake Carriers' Association held a meeting in the headquarters of the association in the Western Reserve building, Cleveland, on Wednesday of this week. No arrangements were made for conferences with the various labor organizations, but meetings will be held with representatives of the labor unions later. Shipping offices will be operated at all of the docks by the association, and all the shipping masters will be in charge of the association's shipping commissioner, Mr. A. R. Rumsey.

Capt. C. H. Sinclair has bought outright the patents and good will of the Brown Automatic Indicator Co. A model of the Brown device was exhibited at the recent annual meeting of the Lake Carriers' Association in Detroit and attacted considerable attention. Its purpose is to indicate on a diagram in the pilot-house whether orders transmitted by the master have been correctly received in the engine-room. The cost of installation is small, whereas the benefit to be derived, especially in emergency cases, is immeasurable.

A collision between American boats in American waters has been passed on by a Canadian admiralty court. By the decision the Gilchrist Transportation Co., of Cleveland, loses the case, and must pay about $5,000 to the St. Clair Navigation Co., owner of the schooner Monguagon, and to the Southern Coal Transportation Co., owner of a cargo of coal on the schooner when she was in collision with the steamer D. C. Whitney, in Sandusky harbor in November, 1901. The Whitney was then owned by the Inland Star Transit Co., and is now operated by the Gilchrist company. The case was heard recently by Judge Hodgins at Sandwich. It came to him through the fact that the steamer Whitney was libeled at Amherstburg, in Canadian waters. He decided that the Whitney was at fault, and left the amount of damages to be fixed by Attorney J. F. Hare, of Windsor. He makes the following awards: St. Clair Navigation Co., $3,751.35; Southern Coal & Transportation Co., $463.60. Five per cent interest on these amounts from Nov. 28, 1901, will bring the total damages to more than $5,000. In deciding the unusual case, the admiralty laws back as far as King Charles II. were ransacked.

THE JAMESTOWN EXPOSITION.

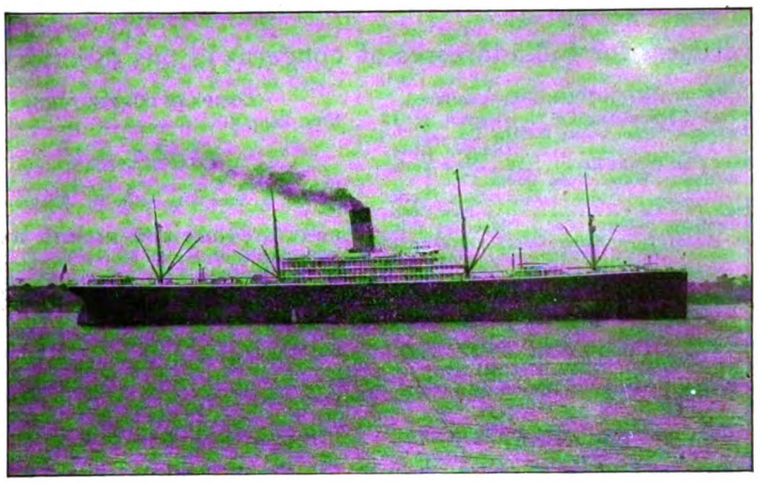
Concerning the Jamestown (Va.) Exposition, which is to take place in 1907 under national auspices, and for the success of which many states have already promised their co-operation, ex-Governor William E. Cameron, of Virginia, contributes to the *Manufacturers' Record* the following information: "The exposition does not occur at Jamestown, for it would require the building of a city there to house visitors. It is to be at Sewell's Point, adjoining Hampton Roads, overlooking the body of water traversed by the Susan Constant, the Godspeed, and the Discovery in 1607; within a mile of the spot where the Virginia and Monitor fought their famous duel, and within six miles of the cities of Norfolk, Newport News, and Portsmouth; about the same distance from Hampton, the oldest continuous English settlement in America, and Fortress Monroe, the great government reservation at Old Point Comfort. The spot is ideal for exhibitory purposes and lies in the center of a supremely historic section. It is accessible by land or water. Eight trunk lines terminate at the port, 16 steamship lines make regular sailings to New York, Boston, Philadelphia, Baltimore, Washington, the river ports in Virginia and North Carolina, and the seaports south of us and to European harbors."

At the annual election of the Fore River Ship Building Co. last week the only new name on the list of directors and the executive committee was that of Wallace B. Donham. Otherwise the officers were all reelected. The list: President, Francis T. Bowles; manager, H. G. Smith; treasurer, J. A. Sedgwick; clerk, Samuel T. MacQuarrie; directors, Gordon Abbott, Francis T. Bowles, Wallace B. Donham, F. C. Dumaine, Wm. A. Gaston, Robert Winsor, Arthur Wainwright, Wm. Endicott, Jr., W. C. Fish; executive committee, Wm. Endicott, Jr., Gordon Abbott, F. C. Dumaine, Francis T. Bowles, Wallace B. Donham.

The Business Men's League of St. Louis is organizing a convention to further Mississippi river improvements which is to include the congressmen of the Mississippi valley states and the commercial organizations of the Mississippi valley. A delegation will go to Washington during the present month to personally invite congressmen to this convention.

Generated on 2024-08-30 17:58 GMT / https://hdl.handle.net/2027/mdp.39015043584393
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Hyde Windlasses and Capstans



Steamship Minnesota equipped with Hyde Windlass and Capstans.

Selected for the Minnesota and Dakota of the Great Northern Steamship Co.'s fleet—the largest vessels ever built in the United States. They are also being installed on nearly all of the vessels now building for the Navy Department, Revenue Cutter service, Lighthouse Board and the United States Coast Survey.

Reason—Their Superiority

Send for Illustrated Catalog.

HYDE WINDLASS COMPANY

BATH, MAINE

Geo. L. McCurdy

169 Jackson Boulevard

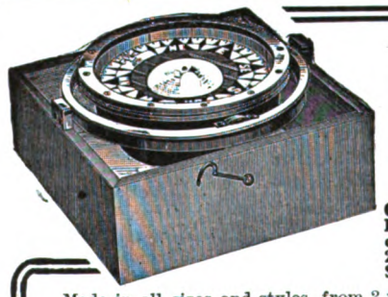
CHICAGO ILLINOIS

INSURANCE

HULLS and CARGOES

DIRECT REPRESENTATIVE OF LEADING AMERICAN AND FOREIGN UNDERWRITERS

THE
BOURNE-FULLER CO.
IRON STEEL
PIG IRON
COKE
Cleveland, Ohio.



Ritchie Liquid Compass

The Standard Liquid Compass used exclusively by the U. S. Navy for over 35 years. Over 25,000 used in Merchant Service.

Made in all sizes and styles, from 2 to 12 inches diameter of card. All compasses made by us have our name printed below the North point or prominently upon the card. **None other are genuine.** Latest form with four or six needles, the best instrument for iron ships. For sale by ship chandlers and nautical instrument dealers. Catalogue free.

E. S. RITCHIE & SONS, Brookline, Mass., U. S. A.
MANUFACTURERS OF NAUTICAL AND PHYSICAL APPARATUS.

Generated on 2024-08-30 17:58 GMT / https://hdl.handle.net/2027/mdp.39015043584393
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Buyers' Directory of the Marine Trade

For a more complete classification than that represented by advertisers in the Marine Review, see the BLUE BOOK OF AMERICAN SHIPPING, marine and naval directory of the United States, published by The Marine Review, Cleveland.

See accompanying index of Advertisers for full addresses of concerns in this directory.

AIR COMPRESSORS, AIR HOISTS, ETC.
Great Lakes Engineering Works.....Detroit.
Mietz, Aug. .....New York.

AIR PORTS, DEAD LIGHTS, ETC.
Marine Mfg. & Supply Co.....New York.

AIR PUMPS AND APPLIANCES.
Fore River Ship & Engine Co..Quincy, Mass.
Great Lakes Engineering Works.....Detroit.

ANCHORS.
Bowers, L. M. & Co.....Binghamton, N. Y.

ANTI-FRICTION METALS.
Cramp, Wm. & Sons.....Philadelphia.

ARTIFICIAL DRAFT FOR BOILERS.
American Ship Building Co.....Cleveland.
Detroit Ship Building Co.....Detroit
Great Lakes Engineering Works.....Detroit

ASH EJECTORS.
Great Lakes Engineering Works.....Detroit.

ATTORNEYS AND PROCTORS IN ADMIRALTY.
Gilchrist, Albert J.....Cleveland.
Goulder, Holding & Masten.....Cleveland.
Hoyt, Dustin & Kelley.....Cleveland.
Jenkins, Russell & Eichelberger....Cleveland.
Kremer, C. E.....Chicago.
MacDonald, Ray G.....Chicago.
Shaw, Warren, Cady & Oakes.....Detroit.
White, Johnson, McCaslin & Cannon Cleveland

BAROMETERS, MARINE GLASSES, ETC.
Ritchie, E. S. & Sons.....Brookline, Mass.

BELTING (LEATHER).
Republic Belting & Supply Co.....Cleveland.

BLOCKS, SHEAVES, ETC.
Boston & Lockport Block Co.....Boston, Mass.
Cleveland Block Co.....Cleveland.

BLOWERS.
Power Specialty Co.....Detroit.

BOAT BUILDERS.
Drein, Thos. & Son.....Wilmington, Del.
Kahnweiler's Sons, David.....New York.
Lane & DeGroot....Long Island City, N. Y.
Marine Construction & D. D. Co.....
.....Mariner's Harbor, S. I., N. Y.
Truscott Boat Mfg. Co.....St. Joseph, Mich.
Willard, Chas. P. & Co. Winthrop Harbor, Ill.

BOILER CLEANING DEVICE.
Power Specialty Co.....Detroit.

BOILER COMPOUNDS.
The Bird-Archer Co..... New York
Dearborn Drug & Chemical Works....Chicago.

BOILER MANUFACTURERS.
Almy Water Tube Boiler Co..Providence, R. I.
American Ship Building Co.....Cleveland.
Atlantic Works.....East Boston, Mass.
Chicago Ship Building Co.....Chicago.
Cramp, Wm. & Sons.....Philadelphia.
Dearing Water Tube Boiler Co.....Detroit.
Detroit Ship Building Co.....Detroit.
East End Boiler Works.....Detroit.
Fletcher, W. A. & Co.....Hoboken, N. J.
Fore River Shipbuilding Co.....Quincy, Mass.
Great Lakes Engineering Works.....Detroit.
Kingsford Foundry & Machine Works....
.....Oswego, N. Y.
Maryland Steel Co.....Sparrows Point, Md.
Milwaukee Dry Dock Co.....Milwaukee.
Mosher Water Tube Boiler Co....New York.
Newport News Ship Building Co.....
.....Newport News, Va.

BOILER MANUFACTURERS—Continued.
New York Shipbuilding Co.....Camden, N. J.
Northwestern Steam Boiler & Mfg. Co....
.....Duluth, Minn.
Quintard Iron Works Co.....New York.
Roberts Safety Water Tube Boiler Co....
.....New York.
Stirling, The Co..... New York.
Superior Ship Building Co....Superior, Wis.
Taylor Water Tube Boiler Co.....Detroit.

BOILER RIVETS.
Bourne-Fuller Co.....Cleveland.

BOILER STAYBOLTS, IRON OR STEEL, HOLLOW OR SOLID.
Falls Hollow Staybolt Co..Cuyahoga Falls, O.

BRASS AND BRONZE CASTINGS.
Cramp, Wm. & Sons.....Philadelphia.
Fore River Ship & Engine Co..Quincy, Mass.
Great Lakes Engineering Works.....Detroit.
Lunkenheimer Co.....Cincinnati.
Macbeth Iron Co.....Cleveland.

BRIDGES, BUILDERS OF.
Cowing, John P.....Cleveland.
Scherzer Rolling Lift Bridge Co.....Chicago.

BUCKETS, ORE AND COAL.
Brown Hoisting & Conveying Machine Co.
..... Cleveland.

BULKHEAD DOORS, WATERTIGHT.
"Long Arm" System Co.....Cleveland.

CABIN AND CABINET FINISHING WOODS.
Martin-Barriss Co.....Cleveland.

CANVAS SPECIALTIES.
Baker & Co., H. H.....Buffalo.
Bunker, E. A. .....New York.
Upson-Walton Co.....Cleveland.
Republic Belting & Supply Co.....Cleveland.

CAPSTANS.
American Ship Windlass Co..Providence, R. I.
Dake Engine Co.....Grand Haven, Mich.
Hyde Windlass Co.....Bath, Me.
Marine Mfg. & Supply Co.....New York.

CEMENT, IRON FOR REPAIRING LEAKS.
Smooth-On Mfg. Co.....Jersey City, N. J.

CHAIN CONVEYORS, HOISTS.
Brown Hoisting Machinery Co. (Inc.)....
..... Cleveland.
General Electric Co.....Schenectady, N. Y.

CHAIN HOISTS.
Boston & Lockport Block Co....Boston, Mass.

CHARTS.
Penton Publishing Co.....Cleveland.

CLOCKS (Marine and Ship's Bell) AND CHRONOMETERS.
Ritchie, E. S. & Sons.....Brookline, Mass.

COAL PRODUCERS AND SHIPPERS.
Hanna, M. A. & Co.....Cleveland.
Pickands, Mather & Co.....Cleveland.
Pittsburg Coal Co.....Cleveland.

COAL AND ORE HANDLING MACHINERY.
Brown Hoisting Machinery Co. (Inc.)....
..... Cleveland.

COMPASSES.
Ritchie, E. S. & Sons.....Brookline, Mass.

COMPASS CORRECTORS.
How, Benj. V..... Boston

CONDENSERS.
Great Lakes Engineering Works.....Detroit.
Thropp & Sons Co., John E...Trenton, N. J.

CONTRACTORS FOR PUBLIC WORKS.
Breymann & Bros., G. H.....Toledo.
Buffalo Dredging Co.....Buffalo.
Dunbar & Sullivan Dredging Co.....Buffalo.
Fitz-Simons & Connell Co.....Chicago.
Great Lakes Dredge & Dock Co.....Chicago.
Hickler Bros.....Sault Ste. Marie, Mich.
Hubbell Co., H. W.....Saginaw, Mich.
Lake Superior Contracting & Dredging Co.,
..... Duluth, Minn.
Smith Co., L. P. & J. A.....Cleveland.
Starke Dredge & Dock Co., C. H..Milwaukee.
Sullivan, M.....Detroit.

CORDAGE.
Baker & Co., H. H.....Buffalo.
Upson-Walton Co.....Cleveland.

CORK JACKETS AND RINGS.
Armstrong Cork Co.....Pittsburg, Pa.
Kahnweiler's Sons, D.....New York.

CRANES, TRAVELING.
Brown Hoisting Machinery Co.....Cleveland.

DIVING APPARATUS.
Morse, A. J. & Son.....Boston.
Schrader's Son, Inc., A..... ... New York.

DRAFT, MECHANICAL.
Sturtevant Co., B. F.....Hyde Park, Mass

DREDGING CONTRACTORS.
Breymann & Bros., G. H.....Toledo.
Buffalo Dredging Co.....Buffalo.
Dunbar & Sullivan Dredging Co.....Buffalo.
Fitz-Simons & Connell Co.....Chicago.
Great Lakes Dredge & Dock Co.....Chicago.
Hickler Bros.....Sault Ste. Marie, Mich.
Hubbell Co., H. W.....Saginaw, Mich
Lake Superior Contracting & Dredging Co.
..... Duluth, Minn.
Smith Co., L. P. & J. A.....Cleveland.
Starke Dredge & Dock Co., C. H..Milwaukee.
Sullivan, M.....Detroit.

DREDGING MACHINERY.
Quintard Iron Works Co.....New York.

DRYING APPARATUS.
Sturtevant, B. F. Co.....Hyde Park, Mass.

DRY DOCKS.
American Ship Building Co.....Cleveland.
Atlantic Works.....East Boston, Mass.
Buffalo Dry Dock Co.....Buffalo.
Chicago Ship Building Co.....Chicago.
Craig Ship Building Co.....Toledo, O.
Cramp, Wm. & Sons.....Philadelphia.
Detroit Ship Building Co.....Detroit.
Great Lakes Engineering Works.....Detroit.
Lockwood Mfg. Co.....East Boston, Mass.
Milwaukee Dry Dock Co.....Milwaukee.
Newport News Ship Building Co.....
.....Newport News, Va.
Shipowners Dry Dock Co.....Chicago.
Superior Ship Building Co....Superior, Wis.
Tietjen & Lang Dry Dock Co.....Hoboken, N. J

DREDGE BUILDERS.
Manitowoc Dry Dock Co.....Manitowoc, Wis.

DYNAMOS.
General Electric Co.....Schenectady, N. Y
Mietz, Aug.....New York.
Thropp & Sons, John E.....Trenton, N. J.

ELECTRIC HOISTS AND CRANES.
General Electric Co.....Schenectady, N. Y.

Generated on 2024-08-30 17:59 GMT / https://hdl.handle.net/2027/mdp.39015043584393
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

WANTED and FOR SALE Department.

PROPOSALS.

PROPOSALS FOR TWO SNAGBOATS.—U. S. Engineer Office, Vicksburg, Miss., Jan. 8, 1906. Sealed proposals, in triplicate, for construction and delivery of two steel snagboats will be received here until 12 noon, standard time, March 10, 1906, and then publicly opened. Information furnished on application. G. M. Hoffman, Capt. Engineers.

FOR SALE.

A Bargain.

Steamer E. F. Gould, length 137 ft., width 28 ft, depth 8 ft. 5 in, tonnage 261 tons. Boiler, engine and hull in good condition. First-class, complete sand pumping outfit now installed on boat, will sell with boat if so desired. Apply
JOHN M. McKERCHEY,
Detroit, Mich.

For Sale Cheap.

A lot of boom chains, tie chains, anchor chains and shackles of various sizes. Also a 2-inch diameter tow line, and new Snelling steerer.
Address BAYFIELD TOWING CO.,
Bayfield, Wis.

For Sale.
LUMBER CARRIERS

Steamer Sachem, 650,000 ft. Barge Geo. B Owen, 1,000,000 feet, light draft. For further information apply to
L. S. SULLIVAN, Toledo, Ohio.

FOR SALE.

For Sale.

New gasoline towboat: 6 inch gunnels, white oak hull, 35 horse power Foos engine; been built one year; can tow 200,000 pounds; can be seen at Natchez, Miss., from Feb. 15th until March 1st, or at Cincinnati later; under 15 tons. DANIEL W. MATHEWS,
Natchez, Miss.

Small Steam Barge for Sale.

We offer for sale at a bargain, a Steam Barge, carries 250 tons.
Address HOLMES BROS,
Redwood, N. Y.

For Sale.

Five Scotch Boilers, allowed 160 lbs. steam. Good as new. ERIE MACHINERY CO., 729 Garfield Bldg., Cleveland, O.

THAT'S OUR BUSINESS

Buying, Selling, Chartering BOATS.

If you desire to charter, sell or buy let us help you
CHICAGO STEAMER EXCHANGE,
No. 2 Rush Street.
Long Distance 'Phone Cent. 5046. **CHICAGO.**

WANTED.

WANTED—6 x 12 fore and aft compound engine and boiler. Wanted to buy medium size steam yacht ALEX J. SULLIVAN, 588 Cass Ave., Detroit, Mich.

Steel Steamer.

Wanted to buy steel steamer or controlling interest in one.
Address Box 94, MARINE REVIEW, Cleveland, O.

Dredge Wanted.

Wanted a small dredge that will work in about three feet of water.
THOS. GILLESPIE,
Sturgeon Bay, Wis.

BRASS-FOUNDERS' ALLOYS

BY JOHN F. BUCHANAN

130 Pages. *Price $2.00*

As a brass-founder, Mr. Buchanan has sought to embody in this work only such features as have been approved in actual use. The uses and characteristics of the common metals are explained as are the peculiarities of alloys. In short it covers the subject of brass-founding.

FOR THE ABOVE OR ANY OTHER BOOK ALONG MECHANICAL LINES ADDRESS

The Iron Trade Review
CLEVELAND, O.

GREAT LAKES REGISTER

FOR THE
CLASSIFICATION OF STEEL AND WOODEN VESSELS.

Estb. 1828 — BUREAU VERITAS REGISTRE — FONDE 1828 — GREAT · LAKES · REGISTER — ESTD · 1896 — Estb. 1898

COMBINED AND ISSUED IN CONNECTION WITH

BUREAU VERITAS
INTERNATIONAL REGISTER OF SHIPPING.

THE RATINGS OF GREAT LAKES REGISTER GO BEFORE AND ARE ACCEPTED BY THE LEADING UNDERWRITERS OF AMERICA AND EUROPE. VESSELS BUILT UNDER THE SUPERVISION OF ITS SURVEYORS WILL RECEIVE SPECIAL RATING, AND WILL ALSO BE PUBLISHED IN BUREAU VERITAS INTERNATIONAL REGISTER OF SHIPPING.

PLANS AND SPECIFICATIONS FURNISHED.

GREAT LAKES REGISTER SURVEYORS ARE ESTABLISHED AT ALL THE PRINCIPAL PORTS ON THE GREAT LAKES.

F. D. HERRIMAN, SURVEYOR GENERAL,
320-322 Perry-Payne Building, · · · CLEVELAND, O.

CHARLES E. PECK. WILLIAM A. PRIME.

CHAS. E. & W. F. PECK,

Insurance Brokers. Average Adjusters.
ESTABLISHED 1870.
NEW YORK, 58 William Street,
BOSTON, 153 Milk St.
BUFFALO, 906 The Fidelity Bldg.
CLEVELAND, 1107-8 Williamson Bldg.
CHICAGO, 1115-16 Royal Insurance Bldg.
REPRESENTED BY
C. T. BOWRING & CO., (Insurance) LTD.,
5 and 6 Billiter Ave., LONDON,
and at "LLOYD'S" LONDON.

HULLS and CARGOES.

We place insurances in the most advantageous markets, employing, in the interest of our clients and with equal facility, all Foreign and Home companies, at the best procurable rates and terms.

We Represent Only the Assured.

The Blue Book of American Shipping, Marine Directory of the World, $5.00

Practical Marine Engineering

By PROF. W. F. DURANT

For Marine Engineers and Students, with aids for applicants for marine engineers' license.

PRICE $6.00

FOR SALE BY
THE MARINE REVIEW, Cleveland

Generated on 2024-08-30 17:58 GMT / https://hdl.handle.net/2027/mdp.39015043584393
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Buyers' Directory of the Marine Trade.—*Continued.*

ELECTRIC LIGHT AND POWER PLANTS.
General Electric Co.....Schenectady, N. Y.
Mietz, Aug. .....New York.
Sturtevant, B. F. & Co.....Hyde Park, Mass.
Thropp & Sons, John E.....Trenton, N. J.

ENGINE BUILDERS, MARINE.
American Ship Building Co.....Cleveland.
Atlantic Works.....East Boston, Mass.
Chicago Ship Building Co.....Chicago.
Chase Machine Co.....Cleveland.
Cramp, Wm. & Sons.....Philadelphia.
Craig Ship Building Co.....Toledo, O.
Detroit Ship Building Co.....Detroit.
Fletcher, W. & A. Co.....Hoboken, N. J.
Fore River Shipbuilding Co....Quincy, Mass.
Great Lakes Engineering Works.Detroit, Mich.
Hall Bros. .....Philadelphia.
Lockwood Mfg. Co.....East Boston, Mass.
Maryland Steel Co.....Sparrows Point, Md.
Mietz, Aug.....New York.
Milwaukee Dry Dock Co.....Milwaukee.
Mosher, Chas. D.....New York.
Moulton Steering Engine Co.....New York.
Newport News Ship Building Co.....
.....Newport News, Va.
New York Shipbuilding Co....Camden, N. J.
Northwestern Steam Boiler & Mfg. Co...
..... Duluth, Mich.
Quintard Iron Works Co.....New York.
Roach's Ship Yard.....Chester, Pa.
Sheriffs Mfg. Co.....Milwaukee.
Superior Ship Building Co....Superior, Wis.
Thropp, J. E. & Sons Co.....Trenton, N. J.
Trout, H. G.....Buffalo.

ENGINE ROOM TELEGRAPH, CALL BELLS, ETC.
Cory, Chas. & Son.....New York.
Marine Mfg. Supply Co.....New York.

ENGINEERING SPECIALTIES AND SUPPLIES.
Kieley & Mueller .....New York.
Lunkenheimer Co. .....Cincinnati.
Northwestern Steam Boiler & Mfg. Co...
..... Duluth, Minn.

ENGINEERS, MARINE, MECHANICAL, CONSULTING.
Hynd, Alexander .....Cleveland.
Hunt, Robt. W. & Co.....Chicago.
Kidd, Joseph.....Duluth, Minn.
Mosher, Chas. D.....New York.
Nacey, James .....Cleveland.
Roelker, H. B. .....New York.
Wood, W. J. .....Chicago.

FEED WATER PURIFIERS AND HEATERS.
Greacen-Derby Engineering Co.....
.....Perth Amboy, N. J.
Ross Valve Co.....Troy, N. Y.

FIRE EXTINGUISHERS.
Safety Fire Extinguisher Co.....New York.

FIXTURES FOR LAMPS, OIL OR ELECTRIC.
General Electric Co.....Schenectady, N. Y.

FORGES.
Sutton Co., C. E.....Toledo, O.

FORGINGS FOR CRANK, PROPELLER OR THRUST SHAFTS, ETC.
Cleveland City Forge & Iron Co...Cleveland.
Fore River Shipbuilding Co.....Quincy, Mass.
Macbeth Iron Co.....Cleveland.

FLUE WELDING.
Fix's, S. Sons.....Cleveland.

FUELING COMPANIES AND COAL DEALERS.
Hanna, M. A. & Co.....Cleveland.
Ironville Dock & Coal Co.....Toledo, O.
Parker Bros. Co., Ltd.....Detroit.
Pickands, Mather & Co.....Cleveland.
Pittsburg Coal Co.....Cleveland.
Smith, Stanley B., & Co.....Detroit.
Smith Coal & Dock Co., Stanley B. Toledo, O.

FURNACES FOR BOILERS.
Continental Iron Works.....New York.

GAS BUOYS.
Safety Car Heating & Lighting Co..New York.

GAS AND GASOLINE ENGINES.
Chase Machine Co.....Cleveland.

GAUGES, STEAM AND VACUUM.
Lunkenheimer Co. .....Cincinnati.

GAUGES, WATER.
Bonner Co., Wm. T.....Boston.
Lunkenheimer Co. .....Cincinnati, O.

GENERATING SETS.
General Electric Co.....Schenectady, N. Y.

GRAPHITE.
Dixon Crucible Co., Joseph..Jersey City, N. J

GREASE EXTRACTORS.
Greacen-Derby Engineering Co.....
.....Perth Amboy, N. J.

HAMMERS, STEAM.
Chase Machine Co.....Cleveland.

HEATING APPARATUS.
Sutton Co., C. E.....Toledo, O.

HOISTS FOR CARGO, ETC.
American Ship Building Co.....Cleveland.
Brown Hoisting Machinery Co. (Inc.)....
..... Cleveland.
Chase Machine Co.....Cleveland.
Dake Engine Co.....Grand Haven, Mich.
General Electric Co.....New York.
Georgian Bay Engineering Works.....
.....Midland, Ont.
Hyde Windlass Co.....Bath, Me.
Marine Iron Co.....Bay City.
Mietz, Aug. .....New York.

HOLLOW SHAFTINGS, IRON OR STEEL.
Falls Hollow Staybolt Co...Cuyahoga Falls, O.

HOLLOW STAYBOLT IRON.
Falls Hollow Staybolt Co...Cuyahoga Falls, O.

HYDRAULIC DREDGES.
Great Lakes Engineering Works.....Detroit.

HYDRAULIC TOOLS.
Watson-Stillman Co., The.....New York.

ICE MACHINERY.
Great Lakes Engineering Works.....Detroit.
Roelker, H. B.....New York.

INJECTORS.
American Injector Co.....Detroit.
Jenkins Bros. .....New York.
Lunkenheimer Co.....Cincinnati.
Penberthy Injector Co.....Detroit, Mich.

INSURANCE, MARINE.
Elphicke, C. W. & Co.....Chicago.
Fleming & Co., E. J.....Chicago.
Gilchrist & Co., C. P.....Cleveland.
Hawgood & Co., W. A.....Cleveland.
Helm & Co., D. T.....Duluth.
Hutchinson & Co.....Cleveland.
McCarthy, T. R.....Montreal.
McCurdy, Geo. L.....Chicago.
Mitchell & Co.....Cleveland.
Parker Bros. Co., Ltd.....Detroit.
Peck, Chas. E. & W. F..New York & Chicago.
Prindiville & Co.....Chicago.
Richardson, W. C.....Cleveland.
Sullivan, D. & Co.....Chicago.

IRON CASTINGS.
Sutton Co., C. E.....Toledo, O.

IRON ORE AND PIG IRON.
Bourne-Fuller Co.....Cleveland, O.
Hanna, M. A. & Co.....Cleveland.
Pickands, Mather & Co.....Cleveland.

LAUNCHES—STEAM, NAPHTHA, ELECTRIC.
Truscott Boat Mfg. Co.....St. Joseph, Mich.

LIFE PRESERVERS, LIFE BOATS, BUOYS.
Armstrong, Cork Co.....Pittsburg.
Drein, Thos. & Son.....Wilmington, Del.
Kahnweiler's Sons, D.....New York.

LIGHTS, SIDE AND SIGNAL.
Russell & Watson .....Buffalo.

LOGS.
Nicholson Ship Log Co.....Cleveland.
Walker & Sons, Thomas....Birmingham, Eng.
Also Ship Chandlers.

LUBRICATING GRAPHITE.
Dixon Crucible Co., Joseph..Jersey City, N. J.

LUBRICATORS.
Lunkenheimer Co. .....Cincinnati

LUMBER.
Martin-Barriss Co.....Cleveland.

MACHINISTS.
Chase Machine Co.....Cleveland.
Hickler Bros.....Sault Ste. Marie, Mich.
Lockwood Mfg. Co.....East Boston, Mass.

MACHINE TOOLS (WOOD WORKING).
Atlantic Works, Inc.....Philadelphia.

MARINE RAILWAYS.
Hickler Bros.....Sault Ste. Marie, Mich.

MARINE RAILWAYS, BUILDERS OF.
Crandall & Son, H. I.....East Boston, Mass.

MATTRESSES, CUSHIONS, BEDDING.
Fogg, M. W.....New York.

MECHANICAL DRAFT FOR BOILERS.
American Ship Building Co.....Cleveland.
Detroit Ship Building Co.....Detroit.
Great Lakes Engineering Works.....Detroit.

METALLIC PACKING.
Katzenstein, L. & Co.....New York.

MOTORS, GENERATORS—ELECTRIC
General Electric Co.....Schenectady, N. Y.

NAUTICAL INSTRUMENTS.
Benjamin Farnum How.....Boston
Ritchie, E. S., & Sons.....Brookline, Mass.

NAVAL ARCHITECTS.
Hynd, Alexander .....Cleveland.
Kidd, Joseph .....Duluth, Minn.
Mosher, Chas. D.....New York.
Nacey, James .....Cleveland.
Wood, W. J. .....Chicago.

OAKUM.
Stratford, Oakum Co.....Jersey City, N. J.

OIL ENGINES.
Mietz, Aug. .....New York.

OILS AND LUBRICANTS.
Dixon Crucible Co., Joseph..Jersey City, N. J.
Standard Oil Co.....Cleveland.

PACKING.
Jenkins Bros. .....New York.
Katzenstein, L. & Co.....New York.
The National Metallic Packing Co....Oberlin, O.

PAINTS.
Baker, Howard H. & Co.....Buffalo.
Upson-Walton Co. .....Cleveland.

PATTERN SHOP MACHINERY.
Atlantic Works, Inc.....Philadelphia.

Generated on 2024-08-30 17:56 GMT / https://hdl.handle.net/2027/mdp.39015043584393
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Books on Naval Architecture, Ship Yard Practice, Seamanship, Etc.

AZIMUTH TABLES BETWEEN PARALLELS OF LATITUDE 30° AND 60° INCLUSIVE—Burdwood..... $2 00

AZIMUTH TABLES FOR PARALLELS OF LATITUDE BETWEEN 40° N. AND 50° N. INCLUSIVE—Hydrographic office 50

AMERICAN PRACTICAL NAVIGATOR—Nathaniel Bowditch. 1902 edition $2 25

CLASS BOOK OF NAVAL ARCHITECTURE—Practical—Laying Off—Theoretical—By W. J. Lovett..... 3 50

COURSE CORRECTOR—A great aid to those who use true and magnetic courses, and apply deviation, etc.—Capt. R. M. Pugsley 50

COURSE PROTRACTOR—Capt. R. M. Pugsley 1 00

CURRENT-COURSE PROJECTOR—Use this instrument and know exactly how much to allow for a current—Capt. R M. Pugsley .. 3 00

DATA BOOK—Naval architects and engineers' data book. By T. H. Watson. A reliable and simple means of recording valuable data, etc., of vessels and engines. Size of book, 8¼ in. by 5 in., cloth 1 50

ELECTROMAGNETIC PHENOMENA AND THE DEVIATIONS OF THE COMPASS—Com. T. A. Lyons 6 00

ELEMENTARY NAVAL TACTICS—Bainbridge-Hoff..... 2 00

ELEMENTARY SEAMANSHIP—By Barker. New and enlarged edition 2 50

ELEMENTS OF NAVIGATION—Henderson 1 00

ELEMENTS OF YACHT DESIGN—Norman L. Skene..... 2 00

GUIDE to the U. S. Local Inspectors examination of masters and mates of ocean-going steam and sailing ships, with complete instructions and informtaion for those who wish to learn navigation and save the expense of attending school by preparing themselves for the examination—Capt. R. M. Pugsley 2 00

HAND BOOK OF ADMIRALTY LAW—Robt. M. Hughes.... 3 75

HINTS ON LEGAL DUTIES OF SHIPMASTERS—B. W. Ginsburg 1 75

HOW TO BUILD A LAUNCH FROM PLANS—, with general instructions for the care and running of gas engines. Chas. G. Davis 1 50

INDICATOR PRACTICE—Hemenway..... 2 00

INTERNATIONAL SIGNAL CODE—Bureau of Navigation. New edition 3 00

KNOW YOUR OWN SHIP—Thos. Walton 3 50

LAKE AND COAST NAVIGATION AND NAUTICAL ASTRONOMY—Int. Textbook Co..... 3 50

MAGNETISM AND THE DEVIATION OF THE COMPASS IN IRON SHIPS—Thos. L. Ainsley..... 2 00

MANUAL OF ALGEBRA—R. C. Buck. For the use, more especially, of young sailors and officers in the merchant navy; numerous examples and exercises 1 50

MARINE INSURANCE—W. Gow 1 50

MARINE PROPELLERS—Barnaby..... 4 50

MARINER'S COMPASS IN AN IRON SHIP: How to keep it efficient and use it intelligently—J. W. Dixon..... 1 00

MODEL ENGINES AND SMALL BOATS—N. M. Hopkins. New methods of engine and boiler making; ship design and construction; fifty illustrations 1 25

MODERN NAVIGATION: A text book of navigation and nautical astronomy suitable for the examinations of the royal navy and board of education—Wm. A. Hall..... ..... 2 60

MODERN PRACTICE OF SHIP BUILDING IN IRON AND STEEL—Samuel J. P. Thearle. Two volumes. Second edition, revised and enlarged 5 25

MODERN SEAMANSHIP—Lieut. Com. Austin M. Knight, U. S. N. Adopted as the text book of the United States Naval Academy 6 00

NAVAL ARCHITECTS AND SHIPBUILDERS' POCKET BOOK—Clement Mackrow. Formulae, rules and tables, and marine engineers' and surveyors' Handy Book of Reference. Eighth edition, revised and enlarged 5 00

NAVAL ARCHITECTURE: A manual on laying off iron and steel vessels—Thos. H. Watson. Valuable for naval architects as well as beginners in ship yards..... 5 00

NAVAL ARCHITECTURE—Cecil H. Peabody. Just published... 7 50

NAVAL ARCHITECTURE—Sir W. H. White. New edition. 750 pages 9 00

NAVAL ARCHITECTURE—W. J. Lovett. Practical, Laying-Off, Theoretical. (Just out, 1905.)..... ..... $2 50

NAVAL CONSTRUCTOR —By Geo. Simpson. A book on Ship Design for Students, Ship Builders and Owners, Marine Superintendents, Engineers and Draughtsmen..... 5 00

NAVAL DICTIONARY—Howard Patterson..... 1 00

NAVIGATION SIMPLIFIED—C. E. McArthur. Containing all problems required for U. S. Local Inspector's Examination of Masters and Mates of seagoing vessels 1 00

OCEAN NAVIGATION AND NAUTICAL TABLES—Int. Textbook Co. 3 50

PILOT AND HOW TO DO THE WORK—A small pocket guide to the U. S. Local Inspectors examination of masters and mates of ocean-going steam and sailing ships..... 1 00

POCKET BOOK OF MARINE ENGINEERING, RULES AND TABLES—Seaton and Rounthwaite. For marine engineers, naval architects, superintendents and others engaged in construction of marine machinery 3 00

PRACTICAL COMPASS ADJUSTMENT on Iron, Composite and Wooden Vessels. Illustrated.—Capt. W. J. Smith 3 00

PRACTICAL INFORMATION ON THE DEVIATION OF THE COMPASS, for the use of Masters and Mates of Iron Ships—J. T. Towson 3 00

PRACTICAL SEAMANSHIP FOR USE IN THE MERCHANT SERVICE: Including all ordinary subjects; also Steam Seamanship. Wreck Lifting, Avoiding Collision, Wire Splicing, Displacement and everything necessary to be known by seamen of the present day. Second edition, illustrated.—John Todd and W. B. Whall 9 00

PRACTICAL SHIPBUILDING: A treatise on the structural design and building of modern steel vessels—By A. Campbell Holms—Two volumes..... 16 00

RESISTANCE AND PROPULSION OF SHIPS—Durand..... 5 00

SAILING DIRECTIONS FOR THE GREAT LAKES—Hydrographic Office—Separate book for each lake—50 cents each or full set for 2 00

SAILS AND SAILMAKING..... 1 25

SCOTT'S COAST PILOT—Geo. Scott..... 1 50

SCREW PROPELLER COMPUTER—McDermott..... 5 00

SCREW PROPELLERS AND MARINE PROPULSION—I. McKim Chase 3 00

SELF-INSTRUCTION IN THE PRACTICE AND THEORY OF NAVIGATION—Earl of Dunraven. Two volumes..... 7 00

SELF-INSTRUCTOR IN NAVIGATION AND PRACTICAL GUIDE to the examinations of the U. S. Government Inspectors for masters and mates of ocean-going steamships and sailing vessels—Capt. W. J. Smith. Second edition, revised and enlarged. Cloth bound 3 00

SHIP BUILDING—Tables for constructing ship's lines. Second edition. Archibald Hogg 3 00

SIMPLE ELEMENTS OF NAVIGATION—Young. New second edition 3 00

SMALL YACHT CONSTRUCTION AND RIGGING—Linton Hope 3 00

STABILITY OF SHIPS—Sir E. J. Reed 3 40

STEEL SHIPS: Their Construction and Maintenance. A manual for ship builders, ship superintendents, students and marine engineers—Thos. Walton 5 50

TAIT'S SEAMANSHIP—Jas. Tait 75

TEXT BOOK OF NAVAL ARCHITECTURE—J. J. Welch 1 50

TEXT BOOK OF SEAMANSHIP—Com. S. B. Luce. U. S. N. Equipping and handling of vessels under sail or steam.... 10 00

THEORETICAL NAVAL ARCHITECTURE: A treatise on the calculation involved in naval design—Samuel J. P. Thearle. In two volumes 3 50

THEORETICAL NAVAL ARCHITECTURE—E. L. Attwood. Text book; 114 diagrams 3 50

WAR SHIPS: A TEXTBOOK ON THE CONSTRUCTION, PROTECTION, STABILITY, TURNING, ETC., OF WAR VESSELS—E. L. Attwood 3 00

"WRINKLES" IN PRACTICAL NAVIGATION. Ninth edition, revised. S. T. S. Lecky 3 40

YACHT ETIQUETTE—Capt. Howard Patterson 1 00

Sent to any address, carriage prepaid, at prices named. There is no book on Navigation, Marine Engineering, Ship Building, or the allied industries, that is not either published or for sale by

THE MARINE REVIEW,

CLEVELAND, O.

Generated on 2024-08-30 17:56 GMT / https://hdl.handle.net/2027/mdp.39015043584393
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Buyers' Directory of the Marine Trade.—*Continued.*

PILE DRIVING AND SUBMARINE WORK.

Buffalo Dredging Co.....Buffalo.
Dunbar & Sullivan Dredging Co.....Buffalo.
Fitz-Simons & Connell Co.....Chicago.
Great Lakes Dredge & Dock Co.....Chicago.
Hickler Bros.....Sault Ste. Marie, Mich.
Hubbell Co., H. W.....Saginaw, Mich.
Lake Superior Contracting & Dredging Co. ..... Duluth, Minn.
Parker Bros. Co., Ltd.....Detroit.
Smith Co., L. P. & J. A.....Cleveland.
Starke Dredge & Dock Co., C. H..Milwaukee.
Sullivan, M..... Detroit

PIPE, WROUGHT IRON.

Bourne-Fuller Co.....Cleveland, O.
Macbeth Iron Co.....Cleveland.
Reading Iron Co.....Reading. Pa.

PLANING MILL MACHINERY.

Atlantic Works, Inc.....Philadelphia.

PLATES—SHIP, STRUCTURAL, ETC.

Bourne-Fuller Co.....Cleveland, O.
Otis Steel Co.....Cleveland.

PRESSURE REGULATORS.

Kieley & Mueller .....New York.
Ross Valve Co.....Troy, N. Y.

PROPELLER WHEELS.

American Ship Building Co.....Cleveland.
Atlantic Works.....East Boston, Mass.
Cramp, Wm. & Sons.....Philadelphia.
Detroit Ship Building Co.....Detroit.
Fore River Shipbuilding Co.....Quincy, Mass.
Great Lakes Engineering Works.....Detroit.
Hyde Windlass Co.....Bath, Me.
Lockwood Mfg. Co. .....East Boston, Mass.
Marine Iron Works.....Chicago.
Milwaukee Dry Dock Co.....Milwaukee.
Newport News Ship Building Co..... .....Newport News, Va.
Roelker, H. B.....New York.
Sheriffs Mfg. Co.....Milwaukee.
Superior Ship Building Co....Superior, Wis.
Thropp & Sons Co., J. E.....Trenton, N. J.
Trout, H. G.....Buffalo.

PROJECTORS, ELECTRIC.

General Electric Co.....Schenectady, N. Y.

PUMPS FOR VARIOUS PURPOSES.

Great Lakes Engineering Works.....Detroit.
Marine Iron Works.....Chicago.
Kingsford Foundry & Machine Works.... .....Oswego, N. Y

PUNCHES AND SHEARS.

Sutton Co., C. E.....Toledo, O.

RANGES.

Stamford Foundry Co.....Stamford, Conn.

REFRIGERATING APPARATUS.

Great Lakes Engineering Works.....Detroit.
Roelker, H. B.....New York.

REGISTER FOR CLASSIFICATION OF VESSELS.

Great Lakes Register.....Cleveland

RIVETS, STEEL FOR SHIPS AND BOILERS.

Bourne-Fuller Co.....Cleveland, O.

SAFETY VALVES.

Lunkenheimer Co. .....Cincinnati.

SAIL MAKERS.

Baker, Howard H. & Co.....Buffalo.
Upson-Walton Co.....Cleveland.

SALVAGE COMPANIES.

See Wrecking Companies.

SEARCH LIGHTS.

General Electric Co.....Schenectady, N. Y.

SHAFTING, HOLLOW.

Falls Hollow Staybolt Co..Cuyahoga Falls, O.

SHEARS.

See Punches, and Shears.

SHIP AND BOILER PLATES AND SHAPES.

Bourne-Fuller Co.....Cleveland, O.
Otis Steel Co.....Cleveland.

SHIP BUILDERS.

American Ship Building Co.....Cleveland.
Atlantic Works .....East Boston, Mass.
Buffalo Dry Dock Co.....Buffalo.
Cramp, Wm. & Sons.....Philadelphia.
Craig Ship Building Co.....Toledo, O.
Chicago Ship Building Co.....Chicago.
Detroit Ship Building Co.....Detroit.
Fore River Shipbuilding Co.....Quincy, Mass.
Great Lakes Engineering Works.....Detroit.
Lockwood Mfg. Co.....East Boston, Mass.
Manitowoc Dry Dock Co.....Manitowoc, Wis.
Maryland Steel Co.....Sparrows Point, Md.
Milwaukee Dry Dock Co.....Milwaukee.
Newport News Ship Building Co..... .....Newport News, Va.
New York Shipbuilding Co....Camden, N. J.
Roach's Ship Yard.....Chester, Pa.
Shipowner's Dry Dock Co.....Chicago.

SHIP CHANDLERS.

Baker, Howard H. & Co.....Buffalo.
Marine Mfg. & Supply Co.....New York.
Upson-Walton Co.....Cleveland.

SHIP DESIGNERS.

Kidd, Joseph .....Duluth.
Steel, Nacey & Hynd.....Cleveland.
Wood, W. J.....Chicago.

SHIP LANTERNS AND LAMPS.

Russell & Watson.....Buffalo.

SHIP TIMBER.

Martin-Barriss Co.....Cleveland.

SMOOTH-ON COMPOUND, FOR REPAIRS.

Smooth-On Mfg. Co.....Jersey City, N. J.

STAYBOLT IRON OR STEEL BARS, HOLLOW OR SOLID.

Falls Hollow Staybolt Co..Cuyahoga Falls, O.

STEAM VESSELS FOR SALE.

Gilchrist & Co., C. P.....Cleveland.
Holmes, Samuel .....New York.
Lester, S. S.....Quebec, Can.
McCarthy, T. R.....Montreal, Can.

STEAMSHIP LINES, PASS. AND FREIGHT.

American Line .....New York.
Anchor Line .....Buffalo.
Boston Steamship Co.....Boston.
Cleveland & Buffalo Transit Co.....Cleveland.
International Mercantile Marine Co..... .....Philadelphia.
Mallory Line ....New York.
Merchants' Montreal Line.....Montreal.
New York & Cuba Mail S. S. Co...New York.
Red Star Line.....New York.
United Fruit Co.....Bostor

STEEL CASTINGS.

Otis Steel Co.....Cleveland.
Sutton Co., C. E.....Toledo, O.

STEERING APPARATUS.

American Ship Building Co.....Cleveland.
Chase Machine Co.....Cleveland.
Dake Engine Co.....Grand Haven, Mich.
Detroit Ship Building Co.....Detroit.
Hyde Windlass Co.....Bath, Me.
Marine Mfg. & Supply Co.....New York.
Moulton Steering Engine Co.....New York.
Sheriffs Mfg. Co.....Milwaukee.

SUBMARINE DIVING APPARATUS.

Morse & Son, A. J.....Boston.
Schrader's Son, Inc., A..... ....New York.

SURVEYORS, MARINE.

Gaskin, Edward .....Buffalo.
Hynd, Alexander .....Cleveland.
Parker Bros. Co., Ltd.....Detroit.
Nacey, James .....Cleveland.
Steel, Adam .....Cleveland.
Wood, W. J.....Chicago.

TESTS OF MATERIALS.

Hunt, Robert W. & Co.....Chicago.
Lunkenheimer Co.....Cincinnati, O.

TOOLS, METAL WORKING, FOR SHIP AND ENGINE WORKS.

Watson-Stillman Co.....New York.

TOOLS, WOOD WORKING.

Atlantic Works, Inc.....Philadelphia

TOWING MACHINES.

American Ship Windlass Co..Providence, R. I.
Chase Machine Co.....Cleveland.

TOWING COMPANIES.

Donnelly Salvage & Wrecking Co..... .....Kingston, Ont.
Great Lakes Towing Co.....Cleveland.

TRAPS, STEAM.

Kieley & Mueller .....New York.

TRUCKS.

Boston & Lockport Block Co.....Boston.

TUBING, SEAMLESS.

Shelby Steel Tube Co.....Pittsburg, Pa.

VALVES, STEAM SPECIALTIES, ETC.

Jenkins Bros. .....New York.
Kieley & Mueller.....New York.
Lunkenheimer Co.....Cincinnati.
Ross Valve Co.....Troy, N. Y.

VALVES FOR WATER AND GAS.

Lunkenheimer Co.....Cincinnati.
Ross Valve Co.....Troy, N. Y.

VARNISHES.

Detroit Varnish Co.....Detroit.
Detroit White Lead Works.....Detroit.
Also Ship Chandlers.

VENTILATING APPARATUS FOR SHIPS.

Sutton Co., C. E.....Toledo, O.

VESSEL AND FREIGHT AGENTS.

Boland, John J.....Buffalo.
Brown & Co.....Buffalo.
Elphicke, C. W. & Co.....Chicago.
Fleming & Co., E. J.....Chicago.
Gilchrist & Co., C. P.....Cleveland.
Hall, John B.....Buffalo.
Helm & Co., D. T.....Duluth.
Hawgood & Co., W. A.....Cleveland.
Holmes, Samuel .....New York.
Hutchinson & Co.....Cleveland.
Lester, S. S. .....Quebec, Can.
McCarthy, T. R.....Montreal.
Mitchell & Co.....Cleveland.
Parker Bros. Co., Ltd.....Detroit.
Prindiville & Co.....Chicago.
Richardson, W. C.....Cleveland.
Sullivan, D. & Co.....Chicago.

WATER GAUGES.

Bonner Co., Wm. T.....Boston.
Lunkenheimer Co.....Cincinnati, O.

WATERTIGHT BULKHEAD DOORS.

"Long Arm" System Co.....Cleveland

WHISTLES, STEAM.

Lunkenheimer Co..... Cincinnati

WILFORD'S WATERPROOF CLOTH.

Bunker, E. A. .....New York.

WIRE ROPE AND WIRE ROPE FITTINGS.

Baker, H. H. & Co.....Buffalo.
Upson-Walton Co.....Cleveland.

WINDLASSES.

American Ship Windlass Co. Providence, R. I
American Ship Building Co. Cleveland
Dake Engine Co..... Grand Haven, Mich.
Hyde Windlass Co.....Bath, Me.
Marine Mfg. & Supply Co.....New York.

WINCHES.

American Ship Windlass Co..Providence, R. I.
Georgian Bay Engineering Works..... .....Midland, Ont.
Hyde Windlass Co.....Bath, Me.

WOOD WORKING MACHINERY.

Atlantic Works, Inc.....Philadelphia.

WRECKING AND SALVAGE COMPANIES.

Donnelly Salvage & Wrecking Co..... .....Kingston, Ont.
Great Lakes Towing Co.....Cleveland.
Parker Bros. Co., Ltd.....Detroit.

YACHT AND BOAT BUILDERS.

Drein, Thos. & Son.....Wilmington, Del.
Manitowoc Dry Dock Co.....Manitowoc, Wis.
Truscott Boat Mfg. Co.....St. Joseph, Mich.

YAWLS.

Drein, Thos. & Son.....Wilmington, Del.

Generated on 2024-08-30 17:56 GMT / https://hdl.handle.net/2027/mdp.39015043584393
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Supp

NAME OF MINE.	
Mesabi Range	
Adams	
Aetna (Lowmore)	
Agnew	
Ajax (Kanawha)	
Albany	
Alexander	
Auburn	
Bessemer	
Biwabik	
Burt	
Canton	
Cass	
Chisholm	
Cincinnati	
Clark	
Cloquet (Vega)	
Columbia	
Commodore	
Corsica	
Croxton	
Cyprus	
Day	
Duluth	
Elba	
Fayal	
Forest	
Franklin	
Frantz	
Genoa	
Glen	
Grant	
Hawkins	
Hector (Hale)	
Higgins	
Holland	
Hull	
Iroquois	
Jordan	
Kinney	
La Belle	
Lake Sup. Group	
La Rue	
Laura	
Leetonia	
Leonard	
Lincoln	
Longyear	
Mahoning	
Malta	
Miller	
Minorca	
Monroe	
Morris	
Morrow	
Mtn. Iron	
Myers	
Norman	
Ohio	
Pearce	
Penobscot	
Pettit	
Pillsbury	
Roberts	
Rust	
Sauntry	
Scranton	
Sellers	
Sharon	
Shenango	
Sparta	

Generated on 2024-08-30 17:56 GMT / https://hdl.handle.net/2027/mdp.39015043584393
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Generated on 2024-08-30 17:56 GMT / https://hdl.handle.net/2027/mdp.39015043584393
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google

Digitized by Google

Original from
UNIVERSITY OF MICHIGAN